Fourth Five-Year Review Report

for the

Conrail Rail Yard Superfund Site
Elkhart, Indiana

PREPARED BY:

U.S. Environmental Protection Agency
Region 5
Chicago, Illinois

In consultation with:

Indiana Department of Environmental Management
Indianapolis, Indiana

Approved by: Date:

Richard C. Karl, Director
Superfund Division

6-6-14

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List of Acronyms

AOC	Administrative Order on Consent
ARAR	Applicable or Relevant and Appropriate Requirement
bgs	Below ground surface
CCl_4	Carbon tetrachloride
CD	Consent Decree
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	Contaminant of Concern
cm/sec	Centimeters per second
DNAPL	Dense non-aqueous phase liquid
EPA	United States Environmental Protection Agency
ERC	Environmental Restrictive Covenant
GAC	Granulated activated carbon
GCW	Groundwater circulation well
gpm	Gallons per minute
GWIASL	Groundwater to indoor air screening level
ICs	Institutional Controls
IDEM	Indiana Department of Environmental Management
IRIS	Integrated Risk Information System
MCL	Maximum Contaminant Level
NCP	National Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
OU	Operable Unit
ppb	Part per billion
ppbv	Part per billion by volume
PRP	Potentially Responsible Party
RA	Remedial Action
RCE	Restrictive Covenant and Easement
RD	Remedial Design
ROD	Record of Decision
SVE	Soil vapor extraction
SVOC	Semi-volatile Organic Compound
SSPA	S. S. Papadopulos & Associates, Inc.
TCE	Trichloroethylene
TI	Technical Impracticability
TOC	Total organic carbon
UAO	Unilateral Administrative Order
URS	URS Corporation
UU/UE	Unlimited Use/Unrestricted Exposure
VOC	Volatile organic compound
ZVI	Zero-valent iron

Executive Summary

The United States Environmental Protection Agency (EPA), in consultation with the Indiana Department of Environmental Management (IDEM), has completed its fourth Five-Year Review (FYR) at the Conrail Rail Yard (Conrail) Superfund site located in Elkhart, Indiana. The purpose of this FYR is to review site information to determine if the remedy is and will continue to be protective of human health and the environment. Completion of the fourth FYR at the Conrail site was triggered by the completion of the third FYR report on June 15, 2009.

The Conrail site is located adjacent to and within the southwestern city limits of Elkhart, Indiana in portions of Elkhart and St. Joseph Counties. The 2500-acre site includes a rail yard, drag strip, and several light industrial properties as well as several residential areas comprised mainly of single-family homes. Soil is contaminated with trichloroethylene (TCE) and carbon tetrachloride (CCl_4) at the rail yard and with CCl_4 at the drag strip. The rail yard groundwater contaminant plume contains dissolved TCE and CCl_4 emanating from the rail yard and flowing northwest towards the Vistula Avenue residential area of Elkhart. The drag strip contaminant plume contains dissolved CCl_4 that emanates from the drag strip, combines with the rail yard plume, and flows northwest.

EPA divided the site into two operable units (OUs), the interim remedial action (OU1) and the final remedial action (OU2). In June 1991, EPA signed an Interim Record of Decision (ROD) for OU1 that identified selected interim remedial actions for the Conrail site including initial hookups of impacted residences and businesses to an alternative water supply, construction of a groundwater extraction system, institutional controls (ICs), and groundwater monitoring. In September 1994, EPA signed the final ROD for OU2 that identified selected final remedial actions for the site including the provision of municipal water to residents in the plume areas; soil vapor extraction (SVE) of volatile organic compounds (VOCs) or air sparging and SVE of two rail yard dense non-aqueous phase liquid (DNAPL) source areas; soil and groundwater cleanup/containment at the drag strip as needed; monitoring, and if necessary, vapor abatement actions in building floors and basements of areas north of the rail yard; groundwater extraction and treatment to achieve groundwater standards in the two contaminant plumes; groundwater and air monitoring; private water well abandonment; placement of ICs such as access and deed restrictions to limit the potential for human exposure to contamination and restrictions to prohibit disturbance of the remedy; and additional remediation of contaminated soil source areas that may be identified during further site investigations.

In 1995, EPA issued a Unilateral Administrative Order (UAO) to the site potentially responsible parties (PRPs) to conduct the remedial design (RD) and then signed a consent decree (CD) with the Settling PRPs in 1997 to perform site remedial actions.

The Settling PRPs completed the initial hook ups of impacted residents to municipal water in June 1997. Based on the RD, in September 2000, EPA signed a ROD amendment to modify the OU2 remedy due to the technical impracticability (TI) of cleaning up the two rail yard DNAPL source areas using SVE. The remedy was changed to hydraulic containment of the DNAPL source areas and natural gradient flushing of the dissolved portion of that plume. The cleanup remedy for the drag strip was not changed. Between 2000 and 2002, due to the discovery of CCl_4

vapor intrusion into the homes of some residents of the Vistula Avenue/Drag Strip area, the residences were provided with vapor abatement units.

In 2004, the Settling PRPs commenced a pilot test of the groundwater pump and treat components of the final remedy, installing three ground water extraction wells and a treatment plant at the rail yard and one ground water circulating well (GCW) at the drag strip. In 2009, EPA determined that the rail yard extraction system did not achieve complete containment of the dissolved contaminant plume at the rail yard and its two DNAPL source zones. The Settling PRPs then installed two additional extraction wells in 2012. Subsequent evaluations of the rail yard extraction system have shown that the expanded system achieves full hydraulic capture at times, but will need evaluation and well-to-well groundwater pumping rate adjustments to achieve containment at all times.

EPA has also concluded that the existing GCW well does not adequately treat contaminated groundwater at the drag strip and the upgradient rail yard plume that commingles with the drag strip has not yet been stabilized. EPA will require that additional groundwater remedial actions be taken to address these issues.

The potential for human exposure to contaminated groundwater is being addressed by the provision of municipal water, continued groundwater and indoor air monitoring, and installation of residential vapor mitigation units as needed. Institutional controls (ICs) have not been fully implemented. In 1997, Conrail, then owner of the rail yard, recorded a notice of the groundwater contamination with the county recorder. The Settling PRPs are currently preparing a Restrictive Covenant and Easement (RCE) for the rail yard. To-date, the owner of the drag strip has refused to sign an RCE for that property.

EPA has determined that the interim remedy (OU1) is protective of human health and the environment in the short-term. Approximately 450 residents were hooked up to the Elkhart municipal water supply and their private wells were abandoned. A groundwater containment system is operating and a quarterly groundwater monitoring program was established. In order for OU1 to be protective over the long-term, EPA requires that ICs be placed to restrict use of the rail yard and to prohibit the disturbance of the remedy.

EPA has determined that the final remedy (OU2) is protective of human health and the environment in the short-term. An additional 675 residences were connected to municipal water and their private wells were abandoned. Exposure pathways that could result in unacceptable risks are currently being controlled by the provision of municipal water, the installation and maintenance of vapor abatement systems, and groundwater and indoor air monitoring. In order for OU2 to be protective over the long-term, EPA requires that the drag strip remedy be completed, pumping rates be adjusted at the rail yard to achieve groundwater containment, and all remaining ICs be implemented, including land-use restrictions that prohibit interference with the remedial components at the rail yard and drag strip and future groundwater-use restrictions.

EPA has determined that the site-wide remedy at the Conrail site is protective of human health and the environment in the short-term. Exposure pathways that could result in unacceptable risks are currently being controlled by the provision of municipal water and by operating remedial

components plus groundwater and indoor air monitoring. In order for the site-wide remedy to be protective over the long-term, EPA requires that the drag strip remedy be completed, pumping rates be adjusted at the rail yard to achieve groundwater containment, and all remaining ICs be implemented, including land-use restrictions that prohibit interference with the remedial components at the rail yard and drag strip and future groundwater-use restrictions.

Because hazardous substances, pollutants, or contaminants remain in place at the Conrail site above levels that allow for unlimited use and unrestricted exposure (UU/UE), EPA plans to conduct a fifth FYR at the site within five years of the completion of this FYR report.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Conrail Rail Yard Superfund Site		
EPA ID: IND000715490		
Region: 5	**State:** IN	**City/County:** City of Elkhart/Elkhart

SITE STATUS	
NPL Status: Final	
Multiple OUs? Yes	**Has the site achieved construction completion?** Yes

REVIEW STATUS
Lead agency: EPA
Author name (Federal or State Project Manager): Timothy Drexler
Author affiliation: EPA
Review period: August 28, 2013 – June 2, 2014
Date of site inspection: November 7, 2013
Type of review: Statutory
Review number: 4
Triggering action date: June 15, 2009
Due date *(five years after triggering action date)*: June 13, 2014

Five-Year Review Summary Form (continued)

Issues/Recommendations

OU(s) without Issues/Recommendations Identified in the Five-Year Review:
None.
Issues and Recommendations Identified in the Five-Year Review:

OU(s): 1 & 2	**Issue Category: Remedy Performance**			
	Issue: The rail yard groundwater extraction system does not achieve complete capture of the contaminant plume at all times.			
	Recommendation: The Settling PRPs should adjust the individual extraction well pumping rates, as appropriate, to achieve consistent capture of the rail yard contaminant plume.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA/State	6/15/2015

OU(s): 1 & 2	**Issue Category: Remedy Performance**			
	Issue: The GCW at the drag strip does not adequately treat contaminated groundwater and the upgradient rail yard plume that is moving beneath the drag strip has not yet been stabilized. Also, the owner of the drag strip is refusing to allow access by the Settling PRPs to conduct additional remedial actions or groundwater monitoring.			
	Recommendation: The Settling PRPs should obtain access to the drag strip and then modify the remedy to result in effective treatment of the groundwater contaminant plumes.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA/State	6/15/2015

OU(s): 1 & 2	Issue Category: Institutional Controls			
	Issue: ICs are not fully implemented, monitored, maintained, or enforced.			
	Recommendation: The Settling PRPs should place the ICs outlined in the IC Work Plan, including implementation of an ordinance or other method to prevent the use of drinking water wells in Elkhart County and RCEs (for the rail yard and drag strip areas) to prevent interference with the remedy. All ICs must be implemented, monitored, maintained, and enforced.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA/State	6/15/2015

OU(s): 1 & 2	Issue Category: Remedy Performance			
	Issue: Groundwater to indoor air screening levels (GWIASLs) are needed to develop interim groundwater cleanup levels.			
	Recommendation: The Settling PRPs should take subslab vapor samples at properties in the groundwater contaminant plume areas to provide for calculation of GWIASLs.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA/State	6/15/2015

Protectiveness Statement(s)

Operable Unit:	*Protectiveness Determination:*
1	Short-term Protective

Protectiveness Statement:
The interim remedy (OU1) is currently protective of human health and the environment in the short-term. Approximately 450 residents were hooked up to the Elkhart municipal water supply and their private wells were abandoned. A groundwater containment system is operating and a quarterly groundwater monitoring program was established. In order for OU1 to be protective over the long-term, EPA requires that ICs be placed to restrict use of the rail yard and to prohibit the disturbance of the remedy.

Operable Unit:	*Protectiveness Determination:*
2	Short-term Protective

Protectiveness Statement:

The final remedy (OU2) is protective of human health and the environment in the short-term. An additional 675 residences were connected to municipal water and their private wells were abandoned. Exposure pathways that could result in unacceptable risks are currently being controlled by the provision of municipal water, the installation and maintenance of vapor abatement systems, and groundwater and indoor air monitoring. In order for OU2 to be protective over the long-term, EPA requires that the drag strip remedy be completed, pumping rates be adjusted at the rail yard to achieve groundwater containment, and all remaining ICs be implemented, including land-use restrictions that prohibit interference with the remedial components at the rail yard and drag strip and future groundwater-use restrictions.

Site-wide Protectiveness Statement

Protectiveness Determination:
Short-term Protective

Protectiveness Statement:

The site-wide remedy at the Conrail site is protective of human health and the environment in the short-term. Exposure pathways that could result in unacceptable risks are currently being controlled by the provision of municipal water and by operating remedial components plus groundwater and indoor air monitoring. In order for the site-wide remedy to be protective over the long-term, EPA requires that the drag strip remedy be completed, pumping rates be adjusted at the rail yard to achieve groundwater containment, and all remaining ICs be implemented, including land-use restrictions that prohibit interference with the remedial components at the rail yard and drag strip and future groundwater-use restrictions.

I. INTRODUCTION

Authority and Purpose

The U.S. Environmental Protection Agency (EPA) conducts five-year reviews (FYR) at Superfund sites to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports. In addition, FYR reports identify issues found during the review, if any, and recommendations to address them.

EPA prepared this FYR report pursuant to Section 121 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Contingency Plan (NCP). CERCLA §121 states:

> *If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.*

EPA interpreted this requirement further in the National Contingency Plan (NCP); 40 Code of Federal Regulations §300.430(f)(4)(ii) states:

> *If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.*

EPA as lead agency, in consultation with support agency Indiana Department of Environmental Management (IDEM), has conducted the fourth FYR of the remedial actions at the Conrail Rail Yard (Conrail) Superfund site in Elkhart, Elkhart County, Indiana. EPA reviewed data supplied by the Settling Potentially Responsible Parties (PRPs) at the site and conducted this statutory FYR from August 2013 to June 2014. This FYR report documents the results of the review.

The triggering action for this review is the date of the previous FYR, completed on June 15, 2009. This FYR is required because hazardous substances, pollutants, or contaminants remain at the Conrail site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

EPA will place the FYR report in the EPA site files and at the local repositories for the Conrail site at the Elkhart Public Library Reference Desk, 300 S. Second Street, Elkhart, Indiana.

II. PROGRESS SINCE LAST REVIEW

EPA signed the third FYR report for the Conrail site in June 2009 and found the remedy to be protective in the short-term. At that time the groundwater remedy was not operating as intended because groundwater contamination was escaping the capture system. However, the potential for human exposure to contaminated water was being addressed by the provision of municipal water to impacted residences, the installation of vapor mitigation units, and vapor monitoring in residents adjacent to impacted areas. Ecological exposure was being addressed by reducing the mass loading of contaminants to the St. Joseph River by pumping and treating contaminated groundwater. All required ICs had not yet been implemented.

Specifically, EPA concluded that the rail yard remedy did not achieve complete capture of the contaminant groundwater plume and that the remedy needed to be modified to achieve plume capture. EPA also concluded that the pilot test groundwater circulation well (GCW) at the drag strip was not adequately cleaning up contaminants and that the drag strip area was not sufficiently characterized. EPA therefore recommended that the site remedies be modified or expanded to adequately treat contaminated areas. With respect to ICs, EPA recommended that the Settling PRPs develop an IC Plan.

Table 1, below, presents a summary of actions taken since the 2009 FYR.

Table 1: Actions Taken Since the Last Five-Year Review

Issues from Previous Review	Recommendations/ Follow-up Actions	Party Responsible	Milestone Date	Action Taken and Outcome	Date of Action
There is incomplete (plume) capture at the rail yard area	Modify the rail yard area extraction system to achieve plume capture	PRPs	12/2010	Rail yard area system was expanded and upgraded; two additional extraction wells were installed.	09/2012
There is incomplete (plume) capture at the drag strip area	Modify/expand the drag strip GCW treatment system to capture significant quantities of site contaminants. Establish performance metrics.	PRPs	12/2010	Drag strip plume was further evaluated. Settling PRPs proposed *in-situ* groundwater treatment remedy in lieu of GCW. EPA conditionally approved approach.	Pending

Issues from Previous Review	Recommendations/ Follow-up Actions	Party Responsible	Milestone Date	Action Taken and Outcome	Date of Action
Drag strip source areas are not characterized	Soil investigation is needed in drag strip to delineate source areas.	PRPs	12/2010	Settling PRPs have conducted a soil and groundwater investigation of the drag strip area, delineating the eastern portion of the plume that is not being captured by existing GCW.	Pending
ICs are not fully implemented	Draft IC Work Plan must be revised and an IC Plan must be generated to document IC activities conducted by the Settling PRPs, plan for necessary corrective measures, map contaminated areas with the type of IC needed for each area, and add necessary activities to ensure implementation and long-term stewardship of the ICs by the Settling PRPs.	PRPs	12/2010	EPA approved the Settling PRPs' IC Work Plan. The IC Plan is to be implemented as the IC Work Plan elements are conducted.	(Approval of IC Work Plan) 11/2010

Recommendation #1

Based on EPA's conclusions in the 2009 FYR report, the Settling PRPs performed aquifer hydraulic pressure tests, analyses, and modeling of the rail yard capture system. From 2009 to 2011, the Settling PRPs performed pressure tests of the rail yard system to estimate aquifer properties and analyze contaminant capture utilizing five newly-installed monitoring wells. The testing procedure involved recording static water levels, stop/starting pumping at the extraction wells, and increasing extraction pumping rates. The Settling PRPs then recorded the resulting pressure changes in the monitoring well system. The evaluation confirmed EPA's conclusion that the existing extraction wells did not completely capture the rail yard contaminant plume. In September 2012, with EPA approval, the Settling PRPs expanded and upgraded the rail yard

system, including the installation of two additional extraction wells. The modified rail yard system has been operating continuously since that time.

Recommendations #2 and #3

Beginning in 2009, the Settling PRPs conducted an investigation of the drag strip contaminant source areas. The investigation involved the collection of 208 groundwater samples from 25 shallow borings and 13 deep borings. The Settling PRPs also conducted a hydraulic test of the pilot GCW to determine its capture radius and the area aquifer properties. Six new monitoring wells were installed to better evaluate groundwater contamination reaching the drag strip from the upgradient rail yard source area and to better define contamination from drag strip area hot spots. The evaluation delineated the groundwater contamination hot spot source area east of the pilot GCW that the pilot well does not treat. EPA also notes that data from the newly-installed monitoring wells show that contaminant levels from the rail yard were, in some cases, increasing.

In a November 6, 2013 letter to the Settling PRPs (Appendix B), EPA concluded that the existing pilot GCW was an effective technology for treating site-related groundwater contamination, but that the well does not treat the eastern hot spot area. Because of the previously-noted lack of complete capture of the rail yard contaminant plume entering the drag strip area, the fluctuating groundwater contaminant concentrations from that source, and the lack of complete treatment of the drag strip area contamination, EPA (and IDEM) called for the immediate addition of a second GCW to treat the eastern hot spot. EPA also called for the collection of data so that it could establish a protective intermediate groundwater cleanup level that would eliminate the potential for dissolved groundwater contaminants to contaminate the indoor air at nearby homes and businesses.

EPA also evaluated the existing residential and commercial indoor air vapor monitoring plan. EPA concluded that additional properties needed to be added to the list of sampled homes, the screening levels for site contaminants needed to be updated, subslab information from residences and businesses was necessary to better evaluate the protectiveness of the remedy, and some degradation products should be added to the laboratory analyte list.

The Settling PRPs collected a total of 182 indoor air samples from 47 buildings in spring and fall 2012, adding 38 structures to the list of residences and businesses that were part of the monitoring network. A total of 28 samples from 13 buildings had reportable detections of chloroform (CCl_4) or trichloroethene (TCE). None of the CCl_4 detections exceeded the EPA action level of 0.65 parts per billion by volume (ppbv). The 11 detections of TCE were either below the indoor air screening level of 0.4 ppbv, or attributable to interfering sources inside of the buildings. The 13 detections of chloroform were either below the indoor air screening levels or attributed to interfering sources. However, EPA and IDEM believe that additional data are needed to support a conclusion of minimal indoor air risk.

EPA and IDEM agree that the collection of subslab vapor samples from representative residences and commercial properties over the groundwater contaminant plume is necessary to evaluate potential human health risks from the vapor intrusion pathway and to help establish a

groundwater to indoor air screening level (GWIASL). The GWIASL will be used as an intermediate cleanup goal in terms of indoor air intrusion concerns until the groundwater plume is cleaned up to drinking water standards. In March 2014, the Settling PRPs began subslab sampling in over 20 area residences and sampling is planned to be completed by June 2014.

From January to March 2014, the Settling PRPs installed ten additional groundwater monitoring wells directly downgradient of the drag strip area to better monitor site-related contaminants entering the downgradient residential area.

In response to the EPA and IDEM requirement that the Settling PRPs supplement the existing pilot GCW at the drag strip to better remediate that area, the Settling PRPs submitted an alternative cleanup strategy in May 2014 to the agencies for approval. The Settling PRPs proposed to treat the drag strip hot spots using a combination of zero-valent iron (ZVI) amendment and enhanced bioremediation. The Settling PRPs proposed a three-month bench-scale test of nutrients, ZVI, ferrous iron, and two bioremediation substrates. After bench testing, *in-situ* pilot studies would then be conducted in portions of the drag strip groundwater plume, incorporating the most-effective means identified during bench testing. EPA and IDEM conditionally approved the Settling PRPs' alternative approach, pending favorable testing and completion of the treatment within a reasonable timeframe. Bench tests are currently underway and pilot tests in the drag strip contaminated groundwater plume are planned for July 2014, pending receipt of access permission from the owner of the drag strip.

Recommendation #4

In November 2010, EPA approved an IC Work Plan generated by the Settling PRPs to address the requirements of the 1997 Consent Decree, 1994 ROD, and 2000 ROD Amendment. Areas specifically addressed in the IC Work Plan include the rail yard, the drag strip, and the neighborhood northwest of the rail yard in Elkhart and St. Joseph Counties. The IC Work Plan task list includes: record an RCE for the rail yard area to prohibit interference with the groundwater containment equipment and prohibit groundwater usage; record an RCE for the drag strip property to prohibit interference with the GCWs and to prohibit the use of groundwater or disturbance of the soil; and, assist EPA in establishing an ordinance in Elkhart County similar to a St. Joseph County ordinance that prohibits the use of groundwater and or the installation of groundwater wells within the site boundaries. The IC Work Plan also amends the Operation and Maintenance (O&M) Plan to provide for monitoring of ICs by the Settling PRPs and to ensure that ICs remain in place.

Currently, the owner of the drag strip will not sign an RCE for that property nor will the owner provide access to the property for any new remedial activity. The Settling PRPs and EPA will continue to attempt to obtain access from the owner of the drag strip for remedial work and request that the owner execute an RCE.

Operation and Maintenance

Groundwater monitoring

On a quarterly basis, the Settling PRPs sample a network of over 80 groundwater monitoring wells at the Conrail site as a part of O&M. Data from the rail yard groundwater monitoring program wells are used by the Settling PRPs to demonstrate if groundwater capture is occurring at the rail yard and to track the downgradient contaminant plume. Operation of the GCW at the drag strip is also tracked under the quarterly monitoring program. All wells are sampled for site contaminants of concern (COCs).

Indoor air monitoring

Vapor monitoring is conducted by the Settling PRPs, on both an annual and a semi-annual basis, in homes adjacent to and downgradient of the drag strip. Six homes are sampled semiannually for vapor intrusion and fifteen are sampled annually.

Groundwater level measurements

The Settling PRPs measure groundwater potentiometric surface levels as a part of site O&M. Water levels are measured quarterly on a comprehensive basis; however, as part of the rail yard treatment plant O&M, a subset of monitoring wells at the rail yard and drag strip are measured monthly.

Monthly Progress Reports and Annual Performance Evaluation

The Settling PRPs submit Monthly Progress Reports to EPA that convey influent and effluent vapor and water sampling results from the rail yard treatment system and removal efficiencies for the rail yard and drag strip granulated activated carbon (GAC) units. Under the O&M Plan, EPA requires GAC replacement when the removal efficiency rate drops to 90 percent. The Settling PRPs also submit Annual RD/RA Groundwater Performance Evaluation Reports to EPA, which evaluate system capture performance for the rail yard and drag strip areas.

Current Compliance

EPA found no significant problems with O&M during the FYR site inspection and interviews with the Settling PRPs.

Long-Term Stewardship

The O&M Plan currently provides for quarterly monitoring well sampling, residential well monitoring, GAC unit removal efficiency monitoring, residential vapor intrusion monitoring, and water level measurements. Once the final groundwater treatment systems are in place with appropriate monitoring points, the O&M Plan will be updated to reflect any changes in the systems.

Costs and Operation

Approximate annual costs of O&M for the Conrail site from 2009 through 2013, as reported by the Settling PRPs, are shown in Table 2, below.

Table 2: O&M Costs from 2009 through December 2013

Time Period	Onsite O&M	Management O&M	5-YR Review Costs	Groundwater treatment plant upgrade	Totals
2009	$348,400	$154,500	$151,700		$654,600
2010	$400,600	$210,200	$1,009,900		$1,620,700
2011	$318,600	$309,800	$267,000		$895,400
2012	$277,800	$215,300	$495,300	$1,083,300	$2,071,700
2013	$345,000	$366,300	$317,100	$57,600	$1,086,000
TOTALs	$1,690,400	$1,256,100	$2,241,000	$1,140,900	$6,328,400

Table 3, below, provides a breakdown of estimated costs for 2013 as reported by the Settling PRPs. They are presented here, however, to provide a general indication of what the relative expenses are for several different categories of O&M activities.

Table 3: Approximate Costs for O&M Activities for 2013

Activity	Cost
Rail Yard O&M	$151,500
GCW O&M	$64,200
Granular Activated Carbon	$89,400
Other Materials and Expenses	$40,000
Management	$366,300
TOTAL	$711,400

Institutional Controls

Institutional controls (ICs) are required to ensure the protectiveness of the remedy. ICs are non-engineered instruments, such as administrative and/or legal controls, that help minimize the potential for exposure to contamination and protect the integrity of the remedy. Compliance with ICs is required to assure long-term protectiveness for any areas which do not allow for UU/UE.

Decision Document:

In order to limit the potential for human exposure to contaminated media, the 1994 ROD identified ICs to be implemented at the site. These ICs included access and deed restrictions to limit the potential for human exposure to contamination and restrictions to prohibit disturbance of the remedy. ICs at the Conrail site are summarized in Table 4 (next page).

Status of ICs and Follow-up Actions Required

Required ICs, identified in the 1994 ROD, 1997 Consent Decree, and 2000 ROD Amendment, have not been fully implemented at the site. Pursuant to the 1997 Consent Decree, on December 8, 1997 the Settling PRPs filed a Notice of Restrictive Covenants for the rail yard area. A St. Joseph County ordinance prohibits drinking water wells in the site contaminated groundwater plume area but, to-date, there is no such ordinance in Elkhart County. In November 2010, EPA approved an IC Work Plan generated by the Settling PRPs to address the requirements of the Consent Decree, 1994 ROD, and 2000 ROD Amendment. Areas specifically addressed in the IC Work Plan include the rail yard, the drag strip, and the neighborhood northwest of the rail yard in Elkhart and St. Joseph Counties. The IC Work Plan task list includes: 1) an RCE for the rail yard area to prohibit interference with the groundwater containment equipment and prohibit groundwater usage, 2) an RCE for the drag strip property to prohibit interference with the GCWs and to prohibit the use of groundwater and disturbance of the soil, and 3) assistance to EPA and support to the local municipality in the establishment of an Elkhart County ordinance to prohibit the use of groundwater or installation of groundwater wells within the contaminated plume area. The IC Work Plan amends the O&M Plan to monitor ICs and ensure that they remain in place.

To date, the Settling PRPs have drafted, but have not yet recorded, an RCE to prohibit interference with groundwater containment equipment, prohibit the use of groundwater, and establish a non-residential land-use restriction at the rail yard. The Settling PRPs also developed a draft Restrictive Covenant for the drag strip property to prohibit interference with the GCWs, prohibit groundwater use, prohibit disturbance of the soil, and establish a non-residential land-use restriction. The Settling PRPs have provided the draft RCE to the Osceola Drag Strip owner for signature on multiple occasions and, to date, the owner has declined to sign the RCE. The drag strip owner is also a PRP and does continue to provide some level of access to the property for the purpose of operation and maintenance of the existing ground water circulation well and well testing, through a 2001 settlement agreement with the Settling PRPs, but has refused to provide full requested access. The Settling PRPs will continue to pursue RCEs at both the rail

Table 4: Summary of Institutional Controls

Media, Engineered Controls, and Areas that do not Support UU/UE Based on Current Conditions	IC Objective and Restrictions	Title of IC Instrument Implemented (or Planned)	Required as part of the remedy?
Groundwater plume underlying entire site – approximately 2500 acres includes rail yard area and drag strip property	Prohibit exposure to groundwater contamination; limit future use of contaminated groundwater.	St. Joseph County ordinance prohibits drinking water wells in Conrail Plume Area. City of Elkhart or Elkhart County ordinance (planned)	Yes or equivalent IC
Remedy components on rail yard and drag strip areas	Prohibit disturbance of remedy; limit access, future use of contaminated areas and limit exposure	RCE or similarly effective proprietary control (planned)	Yes or equivalent IC
Soil contamination on rail yard area	Limit access and exposure	Pursuant to 1997 Consent Decree, Settling PRPs filed a Notice of Restrictive Covenants. An RCE or similarly effective proprietary control (planned).	Yes or equivalent IC
Soil contamination on drag strip property	Limit access and exposure	RCE or similarly effective proprietary control (planned)	Yes or equivalent IC
Groundwater contamination under rail yard area	Limit access and prohibit use and limit exposure	December 10, 1997 Deed Notice of groundwater contamination on rail yard recorded; RCE or similarly effective proprietary control (planned)	Yes or equivalent IC
Groundwater contamination beneath drag strip property	Limit access and prohibit use and limit exposure	RCE or similar effective proprietary or governmental control (planned)	Yes or equivalent IC

* Maps that depict the areas of the site which do not allow for UU/UE will be developed as part of the IC plan and IC implementation.

yard and the drag strip, and to collect evidence of title and ownership of the drag strip property as well as a list of current liens and encumbrances and copies of subrogation agreements for any encumbrances. The Settling PRPs have filed a lawsuit against the drag strip owner seeking to enforce the settlement agreement. The lawsuit requests access to the drag strip to take additional remedial actions and also seeks execution of an RCE.

With respect to establishing an ordinance to prohibit use of groundwater and the installation of groundwater wells for residences in Elkhart County, the Settling PRPs prepared a functional description of the area where groundwater use should be restricted and delivered that description to Elkhart County along with the existing St. Joseph County drilling prohibition ordinance for the Conrail Site area. To date, Elkhart County has not passed an ordinance prohibiting groundwater use in the contaminant plume area. As part of the IC Work Plan, the Settling PRPs will continue to assist EPA and support Elkhart County as part of the county's development of an effective ordinance.

The IC Work Plan institutes an IC monitoring plan by modifying the O&M Plan to include the following: 1) an annual review of any changes in ownership of the rail yard and drag strip, 2) an annual evaluation of the progress of recording the rail yard RCE and drag strip restrictive covenant, 3) an evaluation of the progress toward establishing a groundwater-use ordinance in Elkhart County, and 4) annual notification to EPA in a letter report and certification that ICs are in place and remain effective.

EPA will ensure that the Settling PRPs complete the RCE for the rail yard and continue to request that the drag strip property owner PRP execute an RCE for the drag strip. EPA will also continue to lead the effort to facilitate the development of an Elkhart city or county ordinance to prevent groundwater well drilling in the contaminant plume areas. The IC Work Plan addresses additional IC activities including periodic evaluations of the effectiveness of existing ICs and exploring whether additional ICs are needed and planning for long-term stewardship. EPA, in consultation with IDEM, will require revisions to the IC Work Plan if additional IC corrective measures and additional IC activities are necessary to ensure that effective ICs are implemented, monitored, maintained and enforced. Also as a part of the IC Plan and IC implementation, maps will be generated that depict the current conditions of the site and areas which do not allow for UU/UE.

Current Compliance

Even though the ICs have not been fully implemented, there are currently no known uses of the Conrail site that would be considered inconsistent with the goals to be achieved by the ICs. Based on inspections and interviews with the various site owners and Settling PRPs, EPA is not aware of uses of the site or media uses which are inconsistent with the stated objectives that will be required in ICs.

Long-Term Stewardship

Long-term protectiveness requires compliance with effective ICs. Compliance with effective ICs will be ensured by implementing, maintaining, monitoring and enforcing effective ICs as well as

maintaining the site remedy components. Long-term stewardship procedures within the IC Work Plan include regular inspection of ICs at the site and annual certification to EPA that ICs are in place and effective. Additionally, use of a communications plan and a one-call system should be explored for long-term stewardship.

III. Five-Year Review Process

Administrative Components

On August 28, 2013, EPA notified IDEM and the Settling PRPs by letter that it was initiating the FYR. EPA was the lead-Agency for the review. The review team was composed of EPA and its contractor S.S. Papadopoulos and Associates, IDEM, and the Elkhart County Health Department. The Settling PRPs and their contractor, URS Corporation, contributed to the review.

The components of the FYR schedule included:

- Community Notification and Involvement
- Document Review
- Data Review
- Site Inspections
- Report Development and Review

Community Notification and Involvement

EPA placed a public notice in the September 10, 2013 *Elkhart Truth* newspaper (see Appendix B) to announce that it was beginning the FYR at the Conrail Rail Yard site. EPA is also planning to hold a public meeting in summer 2014 in Elkhart to present the results of this FYR.

Document Review

EPA reviewed a number of documents for this FYR, including the two RODs, the 2000 ROD Amendment, the 1997 Consent Decree, investigatory reports and studies, previous FYR reports, correspondence, memoranda, work plans, construction specifications, and draft design reports. A list of documents reviewed is in Appendix B of this report.

Data Review-Remedy Performance Evaluation

In May 2014, EPA's contractor, S.S. Papadopoulos and Associates, prepared a "Remedy Performance Evaluation" report for EPA, utilizing work products generated by URS Corporation, contractor to the Settling PRPs (Appendix B). The report covered the period from September 2008 until June 2013 and included statistical and spatial mapping analyses to evaluate contamination concentration trends and physical extents at the site. The extent of hydraulic capture developed by the rail yard groundwater extraction system was evaluated using a mapping technique that included kriging with a trend to account for the effect of pumping on the shape of the groundwater surface. Groundwater contaminant concentration trends were analyzed and an

analytical element model was developed to evaluate the likely extent of capture generated by the GCW at the drag strip.

The Remedy Performance Evaluation report finds that the levels of COCs (see Table 5 for list) found in site area monitoring wells are generally decreasing, especially near the rail yard. However, COC levels in some monitoring wells are increasing, particularly in the drag strip area. Six of the twenty monitoring wells in the drag strip area showed increasing trends of a site COC. Notably, COC concentrations above cleanup levels are increasing in MW-07D, which is located in the residential neighborhood downgradient of the drag strip. EPA interprets the increasing trends as due to the lack of complete hydraulic containment at the rail yard prior to the 2012 remedy improvements. Additionally, the area or volume of groundwater that currently exceeds cleanup levels appears to be larger than the volume calculated during the 2009 FYR. The difference may be in part due to the change in number of monitoring wells now being tracked during O&M.

No discharge criteria were established for St. Joseph's River or Crawford Ditch in the ROD due to the risk assessment conclusion of no significant risk to ecological receptors from site contaminants. Clean up of the contaminated groundwater is considered a sufficient remedy for the surface water bodies.

URS Corporation, contractor for the Settling PRPs, submitted a draft Plume Stability Analysis in 2014 to EPA for review. The principal conclusions and recommendations reached in the report are that: 1) additional treatment of the drag strip source areas, as required by the ROD, is necessary; 2) additional monitoring is required in the drag strip area to confidently evaluate the performance of the groundwater remedy; and, 3) it appears necessary to modify extraction rates of individual wells at the rail yard to meet the objectives of hydraulic containment of DNAPL source areas at all times. EPA agrees with these findings and recommendations.

Table 5: List of COCs at the Conrail site

Groundwater COC	Cleanup Level
Trichloroethylene (TCE)	5 µg/L
Carbon Tetrachloride (CCl_4)	5 µg/L
1,1-dichloroethene (1,1-DCE)	7 µg/L
1,2 dichloroethene (1,2-DCE)	70 µg/L
Chloroform	6 µg/L
Tetrachloroethylene (PCE)	5 µg/L
Vinyl chloride (VC)	2 µg/L

Site Inspection

The FYR site inspection was conducted on November 7, 2013, by Tim Drexler and Michael Berman with EPA and Kevin Herron, Susan Horein, and Jeff Bahling with IDEM. Chris Oakes, Helen Hart (by phone), and Matt Gerhard (by phone) represented the Norfolk Southern Railway Company on behalf of Conrail, one of the Settling PRPs. Frank Tamulonis, attorney for Blank Rome, represented American Premier Underwriters, the successor company to Penn Central, one of the Settling PRPs. Anthony Limke (by phone), Tom Hudson, Theresa Davis, and Dana McCue (by phone) represented URS Corporation, contractor for the Settling PRPs. Tara Still represented the Elkhart County Health Department. The purpose of the inspection was to assess the progress of remedy implementation, ensure records and site documents were available and up-to-date, inspect the extraction system to verify that it was operational and did not appear to have significant problems or flaws, and to view general site conditions. The intent was to collect information to be able to better assess the protectiveness of the remedy and try to foresee any future remedy implementation problems and needs.

EPA observed during the site inspection that the site is well-maintained, the access roads are in good condition, and the extraction and monitoring wells are properly secured. One area of fencing at the GCW needed repair. No evidence of vandalism or trespassing was noted.

IV. Technical Assessment

Question A: Is the remedy functioning as intended by the decision documents?

No. Based on the May 2014 Remedy Performance Evaluation report completed for EPA (Appendix B), despite the installation of two new extraction wells during fall 2013, the rail yard area does not achieve complete hydraulic containment of the two DNAPL source zones at all times. Incomplete capture especially occurs on the eastern side of the extraction system (*i.e.* the eastern DNAPL source zone). EPA and the Settling PRPs agree that the improved rail yard extraction system has sufficient capacity to hydraulically contain both DNAPL source zones on a continuous basis. EPA anticipates that with appropriate adjustments made to the extraction rates of individual wells within the system to optimize the zone of hydraulic containment, the groundwater remedy at the rail yard will function as intended by the CD, RODs, and ROD Amendment.

Based on the interpretation of evaluations conducted by the Settling PRPs and EPA, EPA concludes that the drag strip is not achieving complete capture of the CCl_4 plume in the identified hot spot areas. New monitoring wells installed upgradient of the drag strip source areas show that groundwater contaminant concentrations from the rail yard are not stable, with indications of recent increasing concentrations of some contaminants in the shallow, intermediate, and deep zones. In accordance with the 2000 ROD Amendment, a contingency remedy must be developed for the drag strip to adequately clean up hot spots in that area. As previously mentioned, EPA and IDEM requested that the Settling PRPs construct an additional GCW to address the issue. Instead, the Settling PRPs have proposed to treat the drag strip hot spots using a combination of *in-situ* ZVI amendment and enhanced bioremediation. EPA and

IDEM have conditionally approved the Settling PRPs' proposal. As a result, bench tests are now underway and pilot testing is planned for July 2014.

Development of a protective interim cleanup concentration for site contaminants, while waiting for the achievement of drinking water standards, is necessary as a metric for the drag strip groundwater cleanup. Subslab sampling in the residential area downgradient of the drag strip was determined to be necessary to better quantify risks to residents and to calculate a GWIASL. The recent identification of another residence downgradient of the drag strip requiring installation of a vapor mitigation system due to indoor CCl_4 vapor concentrations above action levels is another indication that additional remedial work is necessary.

The ICs called for in the RODs and ROD Amendment are not fully implemented. Effective ICs must be implemented, monitored and maintained. The IC Plan must continue to be implemented. IC activities outlined in the IC Plan have not yet been completed, including the development of an Elkhart County ordinance prohibiting wells within the plume area (similar to the ordinance in St. Joseph County) and the recording of RCEs for the rail yard and drag strip properties.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

Yes.

Changes in Standards and To-Be-Considered Requirements

Action-specific applicable or relevant and appropriate requirements (ARARs) have been changed since the 2009 FYR and these changes have already been implemented at the site. The vapor intrusion remedial action levels for CCl_4 and TCE in EPA's Integrated Risk Information System (IRIS) and EPA's Region 5 Vapor Intrusion Guidance have been modified from their previous values to 0.65 parts per billion by volume (ppbv) for CCl_4 and to 0.4 ppbv for TCE. Previously, the Settling PRPs only monitored for CCl_4 in vapor samples, but now TCE and CCl_4 are both monitored. Those changes are reflected in the indoor air monitoring plan for the site. No additional new standards or to be considered (TBC) requirements affecting the protectiveness of the remedy have been identified.

Changes in Exposure Pathways, Toxicity, and Other Contaminant Characteristics

A human health risk assessment and ecological risk assessment were developed as part of the remedial investigation of the Conrail site. There have been no changes in exposure pathways and other contaminant characteristics. As stated above, toxicity changes have been made for the vapor intrusion pathway for CCl_4 and TCE in EPA's IRIS that are now reflected in site O&M.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

No.

Table 6: Changes in Chemical-Specific Standards

Contaminant	Media	Action Level	Standard		Citation/Year
CCl_4	Indoor Air	0.65 ppbv	Previous	3.0 ppbv	EPA Correspondence, June 1999
			New	0.65 ppbv	IRIS, 2011
TCE	Indoor Air	0.4 ppbv	Previous	N/A	N/A
			New	0.4 ppbv	IRIS, 2011

Technical Assessment Summary

As stated above, shortcomings in the remedy, as it is currently implemented, will need to be addressed. The drag strip remedy has been shown to provide incomplete capture of site-related contaminants. The rail yard remedy will need to be evaluated to determine steps necessary to achieve complete capture of the two DNAPL source areas at all times. A GWIASL needs to be developed utilizing groundwater data, subslab vapor data, and indoor air data so that metrics for interim groundwater cleanup can be developed. Long-term protectiveness will be re-evaluated after the remedy has been modified to address the issues raised.

V. Issues/ Recommendations and Follow-up Actions

Table 7, below, presents issued identified during this FYR.

Table 7: Issues

Issues	Affects Current Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
1. The rail yard groundwater extraction system does not achieve complete capture of the contaminant plume at all times.	N	Y
2. The GCW at the drag strip does not adequately treat contaminated groundwater and the upgradient rail yard plume that is moving beneath the drag strip has not yet been stabilized. Also, the owner of the drag strip is refusing to allow access by the Settling PRPs to conduct additional remedial actions or groundwater monitoring.	N	Y

3. ICs are not fully implemented, monitored, maintained, or enforced.	**N**	**Y**
4. Groundwater to indoor air screening levels (GWIASLs) are needed to develop interim groundwater cleanup levels.	**N**	**Y**

Table 8 presents recommendations and follow-up actions to address the issues listed in Table 7.

Table 8: Recommendations and Follow-up Actions

Issue	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness (Y/N)	
					Current	Future
1	The Settling PRPs should adjust the individual extraction well pumping rates, as appropriate, to achieve consistent capture of the rail yard contaminant plume.	**PRPs**	**EPA/ IDEM**	**June 15, 2015**	**N**	**Y**
2	The Settling PRPs should obtain access to the drag strip and then modify the remedy to result in effective treatment of the groundwater contaminant plumes.	**PRPs**	**EPA/ IDEM**	**June 15, 2015**	**N**	**Y**

Issue	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness (Y/N)	
					Current	Future
3	The Settling PRPs should place the ICs outlined in the IC Work Plan, including implementation of an ordinance or other method to prevent the use of drinking water wells in Elkhart County and RCEs (for the rail yard and drag strip areas) to prevent interference with the remedy. All ICs must be implemented, monitored, maintained, and enforced.		**EPA/ IDEM**	**June 15, 2015**	**N**	**Y**
4	The Settling PRPs should take subslab vapor samples at properties in the groundwater contaminant plume areas to provide for calculation of GWIASLs.	**PRPs**	**EPA/ IDEM**	**June 15, 2015**	**N**	**Y**

VI. Protectiveness Statement(s)

EPA has determined that the interim remedy (OU1) is currently protective of human health and the environment in the short-term. Approximately 450 residents were hooked up to the Elkhart municipal water supply and their private wells were abandoned. A groundwater containment system is operating and a quarterly groundwater monitoring program was established. In order for OU1 to be protective over the long-term, EPA requires that ICs be placed to restrict use of the rail yard and to prohibit the disturbance of the remedy.

EPA has determined that the final remedy (OU2) is protective of human health and the environment in the short-term. An additional 675 residences were connected to municipal water

and their private wells were abandoned. Exposure pathways that could result in unacceptable risks are currently being controlled by the provision of municipal water, the installation and maintenance of vapor abatement systems, and groundwater and indoor air monitoring. In order for OU2 to be protective over the long-term, EPA requires that the drag strip remedy be completed, pumping rates be adjusted at the rail yard to achieve groundwater containment, and all remaining ICs be implemented, including land-use restrictions that prohibit interference with the remedial components at the rail yard and drag strip and future groundwater-use restrictions.

EPA has determined that the site-wide remedy at the Conrail site is protective of human health and the environment in the short-term. Exposure pathways that could result in unacceptable risks are currently being controlled by the provision of municipal water and by operating remedial components plus groundwater and indoor air monitoring. In order for the site-wide remedy to be protective over the long-term, EPA requires that the drag strip remedy be completed, pumping rates be adjusted at the rail yard to achieve groundwater containment, and all remaining ICs be implemented, including land-use restrictions that prohibit interference with the remedial components at the rail yard and drag strip and future groundwater-use restrictions.

VII. Next Review

EPA will complete the fifth FYR at the Conrail site five years from the signature date of this fourth FYR report.

APPENDIX A – EXISTING SITE INFORMATION

A. SITE CHRONOLOGY

Table 9: Chronology of Site Events

Event	Date
Initial discovery of problem or contamination	June 1986
Pre-National Priorities List (NPL) responses (bottled water, carbon filtration units)	September 1986
NPL listing	August 30, 1990
Interim ROD for initial water supply connections	June 28, 1991
Construction start date, water supply connections	August 1994
ROD issued for additional water supply connections, source investigation, and soil/groundwater remediation	September 9, 1994
Unilateral Administrative Order for remedial actions	May 15, 1995
Consent Decree between EPA and Settling PRPs	November 10, 1997
First five-year review	September 23, 1999
ROD Amendment based on TI Waiver	September 27, 2000
Remedial action start, groundwater capture system design and construction	July 2003
Second five-year review	September 27, 2004
Third five-year review	June 15, 2009
Installation of supplemental Rail Yard capture wells	September 2012
Start-up of improved Rail Yard remedial action groundwater capture	February 2013

B. Background

Physical Characteristics

The 2500-acre Conrail Rail Yard site is located adjacent to and within the southwestern city limits of Elkhart, Indiana (see Figure 1). The site includes the rail yard, a 675 acre facility bounded to the north by US33 (Franklin Street), on the east by State Route 19, to the south by Mishawaka Road, and to the west by Ash Road (former State Route 219). The total site includes certain areas of contamination that extend north and northwest from the rail yard including a drag strip facility. Topographically, the site is generally flat.

The rail yard is an electronically controlled hump yard which serves as a classification distribution yard for freight cars. Rail car repair, engine cleaning, and diesel refueling facilities are also located at the yard. The rail yard began operations in 1956 as part of the New York Central Railroad, and continued operations as a subsidiary of the Penn Central Transportation Company until 1976. From 1976 to 1999, Conrail operated the rail yard. In 1999, Norfolk Southern Corporation took over operation of the rail yard.

The major surface water bodies in the vicinity of the site are the St. Joseph River and Baugo Bay. The St. Joseph River flows westward and is located a little over a mile north of the site. Baugo Bay flows north into the St. Joseph River and is located immediately west of the area. Crawford Ditch originates at the site and flows intermittently to the St. Joseph River. Floodplain and wetland areas exist along both the St. Joseph River and Baugo Bay.

The site area consists primarily of unstratified sand and gravel glacial outwash deposits with discrete silt and clay lenses or masses to an approximate depth of 150 feet below ground surface (bgs). The bedrock consists of dense, essentially horizontal, Mississippian- and Devonian-age shale. The depth to the water table varies from 3 to 20 feet bgs. The vertical hydraulic gradient shows a generally downward gradient with groundwater recharge in the rail yard area and groundwater discharge to the St. Joseph River.

Land and Resource Use

There are several light industrial properties located within the area to the north and northwest of the rail yard as well as numerous light industries to the south and east. Within the area there are also several residential areas, comprised mainly of single-family homes. Approximately 3,500 people live within about one and one-half miles of the site.

Future land use for the Conrail site and surrounding areas is anticipated to be similar to current land use.

History of Contamination

The rail yard facility began operations in 1956. From 1961 to 1968 there were numerous citizen complaints filed with state and local authorities regarding oil discharges from the rail yard to the St. Joseph River. Based on interviews with ex-employees of the rail yard and other sources,

between 1966 and 1969, a tank car containing CCl_4 collided with another car during humping operations, causing the release of approximately 16,000 gallons of CCl_4. In 1976, operations at the rail yard were transferred to the Consolidated Rail Corporation (Conrail). From 1976 to the present, spills and releases of oil, diesel fuel, hydrochloric acid, caustic soda, and various petroleum-related substances have occurred. Reports also indicate that a track-cleaning substance and engine degreasers were used and disposed of at the rail yard.

Two additional CCl_4 contaminant source areas, of unknown origin, were identified at the drag strip area in 1998. The drag strip has a history of commercial activity. Prior to its current use as the Osceola Dragway, the drag strip area was the site of a small airstrip. Contamination at the drag strip was likely caused by this use. The Settling PRPs have no ownership of this property, and have right of access through a 2001 settlement agreement with the owner of the drag strip.

Initial Response

In June 1986, a resident on County Road 1 just north of US33 reported to EPA that his residential well contained elevated levels of volatile organic compounds (VOCs). An EPA sample of that well revealed TCE at 800 micrograms per liter (µg/L) or parts per billion (ppb) and CCl_4 at 485 ppb. EPA conducted additional residential water sampling of the area in July 1986. The sampling program included the County Road and LaRue Street areas, located to the northwest and northeast of the rail yard, respectively. Samples were also taken at residences in the Vistula Avenue area, northwest of the County Road 1 area (Figure 2). Out of the 88 residential wells sampled, EPA discovered 63 water samples with detectable levels of TCE, CCl_4, or both. TCE concentrations were as high as 4,870 ppb and CCl_4 concentrations were as high as 6,680 ppb. In contrast, the federal Safe Drinking Water Act maximum contaminant level (MCL) for both TCE and CCl_4 is 5 ppb.

Bottled water was provided to residents whose wells were affected by Conrail site-related contamination. A portion of the residents in the LaRue Street area were later connected to a water-main extension from the city of Elkhart. Many of the residences, however, had carbon filtration units installed to ensure a safe drinking water supply until municipal water was provided. IDEM also periodically sampled residential wells in the area to monitor the migration of site-related contaminants.

EPA sampling of the rail yard was conducted in July and August 1986. The results of analyses revealed soil concentrations of TCE as high as 5,850 ppb and soil concentrations of CCl_4 as high as 117 ppb. On August 30, 1990, the Conrail Rail Yard site was placed on the EPA National Priorities List.

EPA conducted a Remedial Investigation/Feasibility Study at the site and issued an Interim Record of Decision (ROD) in June 1991.

Basis for Taking Action

Based on the results of the RI, a baseline risk assessment was performed to evaluate the risks posed to human health and the environment by site contamination following EPA and State of

Indiana guidance. The risk assessment determined that site contamination does not pose significant ecological risk, but does pose significant human health risks. The risk assessment identified and focused on the following source areas:

- Groundwater and subsurface soil beneath the rail yard.
- Groundwater in the County Road 1 plume area, extending north and west from the central portion of the rail yard, affecting County Road 1, Charles Avenue, and Vistula Street residential areas.
- Groundwater in the LaRue Street plume area, extending north from the eastern portion of the rail yard, affecting the LaRue Street residential area.

From these source areas, the risk assessment identified the following exposure pathways that appeared to have the greatest potential to produce adverse human health effects: direct contact with contaminated soil or groundwater (dermal contact or accidental ingestion) and inhalation of contaminants volatilizing from the soil or groundwater. This risk assessment quantitatively evaluated two groups of receptors, adult workers and visitors exposed to existing site conditions and local residents in potentially affected areas. The risks to site workers and visitors consist of inhaling contaminants volatilized from groundwater and subsurface soils, and possible direct contact during any excavation activity in contaminated areas.

The risks to the residents in the areas of the County Road 1 plume and LaRue Street plume were from ingestion, dermal exposure, and vapor inhalation of groundwater used for domestic purposes, and inhalation of compounds volatilized from the groundwater and infiltrating basements or other enclosed areas. It was assumed that there will be no change in the use of the site in the foreseeable future, and no new residences would be built near the site.

The risk assessment identified the following VOCs as contaminants of potential concern:

acetone	TCE
2-butanone	toluene
CCl_4	vinyl chloride
chloroform	xylenes
chloromethane	1,1,1-trichloroethane
1,1-dichloroethane	1,1,2-trichloroethane
1,1-dichloroethene	tetrachloroethene
1,2-dichloroethene	methyl isobutyl ketone
ethylbenzene	methylene chloride

Of these contaminants of potential concern, it was determined that CCl_4, chloroform, 1,1-dichloroethene, 1,2-dichloroethene, TCE, and vinyl chloride contributed significantly to human health risks. Both categories of human health risks, carcinogenic and non-carcinogenic, were evaluated.

According to the risk assessment, contaminants in three areas of the site posed carcinogenic risks that exceeded the estimated lifetime cancer risk level of 1×10^{-6} established by EPA as a point of

departure for determining protective cleanup levels. These areas were the rail yard area, the County Road 1 plume area, and the LaRue Street plume area.

Ecological impacts from site-related contaminants were also evaluated. The objective of the ecological assessment was to screen the surface waters and sediments of nearby aquatic and wetland habitats for site-related contaminants to estimate the potential risk that those contaminants pose to the natural environment. Results of the environmental assessment indicated that few organic compounds were detected above detection limits in St. Joseph River, Baugo Bay, or nearby ponds. Some singular detections of site-related chemicals were found, but there was no suggestion of pervasive sediment contamination that would likely contribute a significant risk to aquatic life.

C. Remedial Actions

Remedy Selection

Based on the findings discussed above, the following primary remedial action objectives (RAOs) were developed for the Interim Remedial Action at the Conrail site:

- Providing a safe permanent drinking water supply to residents who are potentially at risk; and
- Preventing human exposure to contaminated groundwater.

The secondary objectives for implementing the Interim Remedial Action for the Conrail site include:

- Minimizing further expansion of contamination in the aquifer and further migration of the contaminants to surface water (*i.e.* St. Joseph River and Baugo Bay); and
- Reducing contaminant concentrations in the groundwater within the study area.

On June 28, 1991, EPA selected an Interim Remedial Action for the site in a ROD that included connecting 505 residents to the municipal water supply, extraction and treatment of the County Road 1 contaminant plume, deed restrictions to restrict the future use of the rail yard and a restrictive covenant to prohibit disturbance of components of the remedy.

The following RAOs were later developed for the Final Remedial Action:

- Minimizing the potential for human exposure to contaminants by eliminating significant exposure routes and/or reducing contaminant concentrations
- Minimizing further degradation of the groundwater beneath the Conrail facility
- Minimizing further degradation of the groundwater downgradient from the Conrail facility (outside of the rail yard property boundaries), and
- Restoring groundwater to its original use as a drinking water source

The final Remedial Action, described in the September 9, 1994 ROD, included: 1) connections to the municipal water supply for an additional approximately 650 residents, 2) extraction, treatment, and discharge of contaminated ground water focusing on "hot spots", 3) investigation, and if necessary, remediation of solvent vapors in residences resulting from site contamination, 4) air sparging of the deeper DNAPL contamination areas of the rail yard, 5) excavation of contaminated soils from a small area on the rail yard, and 6) institutional controls including deed restrictions and access restrictions to limit the potential for human exposure to contamination and restrictions to prohibit disturbance of the remedy.

A September 27, 2000 ROD Amendment waived the RAOs within the rail yard and, instead, required hydraulic containment for these source areas. The ROD Amendment replaced the extraction/treatment and air sparging remedy with: 1) a hydraulic containment system for the DNAPL source areas on the rail yard, 2) natural gradient flushing of the dissolved portions of the contaminant plumes, and 3) active remediation of the CCl_4 groundwater contamination in the Vistula/Drag Strip plume area, with extraction and treatment retained as a contingency remedy.

A pre-design study completed by the Settling PRPs on June 19, 2002, delineated two source areas of CCl_4 at the drag strip. On November 25, 2003, EPA approved a work plan from the Settling PRPs for the installation of a groundwater circulation well (GCW) as a pilot to test its efficacy at capturing a substantial quantity of contaminant mass. Data from the completed pilot test program would be used to design a full-scale remedy and to identify performance metrics for the remediation requirements in the 1997 CD.

A Final Design Report for the Rail Yard from the Settling PRPs was accepted by EPA on July 14, 2003, outlining the installation of extraction wells at the rail yard in phases. The first phase was the construction of a treatment plant and the installation of three extraction wells. After an operation and monitoring period, used to assess system capture performance, the scope of the second phase of extraction well installation was to be defined. Up to two additional extraction wells were outlined in the report, as needed, to achieve performance goals of the system.

Remedy Implementation

After EPA signed the Interim ROD in June 1991, it issued a Unilateral Administrative Order (UAO) to Conrail and Penn Central, the Settling PRPs, on July 7, 1992, to perform the cleanup work. Approximately 450 residences were hooked up to the Elkhart municipal water supply between August 1994 and February 1996. Residential wells were abandoned at all residences that received a hookup.

A ROD for the final remedial action was signed by EPA on September 9, 1994. On May 15, 1995, EPA issued a second UAO to the Settling PRPs to hook up the remainder of the homes and businesses in the impacted area to municipal water. By June 16, 1997, an additional 675 residences were then connected to municipal water and their wells abandoned. A quarterly groundwater monitoring program was also established.

On November 10, 1997, EPA entered into a Consent Decree (CD) for Remedial Design/Remedial Action (RD/RA) encompassing the remainder of the work to be performed

under the final ROD. That work included: 1) further sampling of a small area of the rail yard to identify and, if needed, remediate soil contaminant hotspots, 2) investigate DNAPL source areas at the rail yard and drag strip, 3) sample and, if necessary, clean up VOC vapors in residential basements, and 4) perform an ecological study of the St. Joseph River to determine if contaminants were adversely impacting aquatic life. Also in 1997, Conrail recorded a notice of contamination for the approximately 544 acres of the site that it owned.

The rail yard soil sampling indicated that there were no samples that exceeded applicable cleanup levels in the area previously found to have a high concentration of TCE. Therefore, EPA determined that no additional soil cleanup was warranted. The investigation of the rail yard area also confirmed previous conclusions that two CCl_4 DNAPL groundwater plume areas exist.

Investigations of the drag strip indicated that a source of CCl_4 contamination exists in the southwest portion of the drag strip property. Vapor sampling in basements near the drag strip resulted in the identification of CCl_4 vapor intrusion in nine residences at levels that exceeded the site-specific health-based concentration. Soil gas depressurization units were then installed in these nine homes between 2000 and 2002.

Several years of benthic macroinvertebrate study data regarding the potential ecological risks from solvents entering the St. Joseph River via site groundwater contaminant plumes indicate that site contaminants do not pose any measurable ecological risks.

On February 3, 2000, the Settling PRPs submitted a Petition for a Technical Impracticability (TI) Waiver and Request for Remedy Reconsideration requesting EPA to amend the 1994 ROD to change the groundwater remedy. The Settling PRPs stated that it was not technically feasible to clean up the two DNAPL source areas in the rail yard property within a reasonable timeframe. Instead, the Settling PRPs petitioned that the source areas at the rail yard be hydraulically contained and that the dissolved portion of the plume be cleaned up through natural gradient flushing. The Settling PRPs investigation of groundwater contamination in the drag strip area, however, identified another source of CCl_4 groundwater contamination that would likely extend the time needed for remedial action levels to be achieved by natural gradient flushing. The TI Waiver concluded that the drag strip source area would need to be remediated. EPA granted the TI Waiver via the execution of a ROD Amendment on September 27, 2000, and, as required by the CD, the Settling PRPs were required to address the CCl_4 contamination at the Vistula/drag strip area.

Subsequently, a groundwater containment system was designed for the rail yard consisting of five groundwater extraction wells and a groundwater treatment plant. Three extraction wells and the groundwater treatment plant were installed. As a part of the rail yard system plan, after an operation and monitoring period, the need for the two additional extraction wells was to be evaluated. The rail yard remedy, as outlined in a "Final Design Report" dated July 14, 2003, began operation in June 2004.

A pilot GCW system was designed for the drag strip area and installed to remediate the CCl_4 plume. After a period of operation, based on system performance, the installation of a second

GWC system would be considered. The pilot drag strip remedy, as outlined in a "Drag Strip GCW Pilot Report" dated November 25, 2003, began operation in October 2004.

In April 2009, a Remedy Performance Evaluation conducted by EPA concluded that: 1) it appeared necessary to increase extraction and/or supplement the existing groundwater extraction system at the rail yard to meet the objectives of hydraulic containment of DNAPL source areas, 2) further investigation of drag strip source area hot spots was needed, as required by the ROD, to define the plume area and evaluate what additional treatment may be needed, and 3) additional monitoring was required to confidently evaluate the performance of the drag strip groundwater remedy. The 2009 FYR report recommended that the work outlined in the evaluation be performed to determine the protectiveness of the Conrail site remedy.

In late 2009, the Settling PRPs implemented investigation, data analyses, and reporting activities to address the recommended work from the 2009 FYR report. The technical evaluations confirmed the need to improve plume capture at the rail yard, and the Settling Parties implemented design and construction for a rail yard system expansion and upgrade, which were completed in 2012.

Monitoring Wells and Residential Wells

Periodic sampling of residential wells and the installation of a system of monitoring wells, to determine the effectiveness of the source containment and natural gradient flushing, were identified as components of the remedy in the ROD Amendment.

Performance Measurements for Remedy

The goal of the remedy for the rail yard area, as identified in the 2000 ROD Amendment, is the operation of the groundwater treatment system until the contaminant plumes achieve MCLs for the site COCs. The performance measurement for the rail yard area, as identified in a July 14, 2003 Final Design Report, is a weight-of-evidence analysis of: 1) potentiometric surface maps, 2) a comparison of concentration trends in upgradient and downgradient wells, and 3) groundwater modeling. Trends were to be analyzed annually for the first three years, and then every five years afterward.

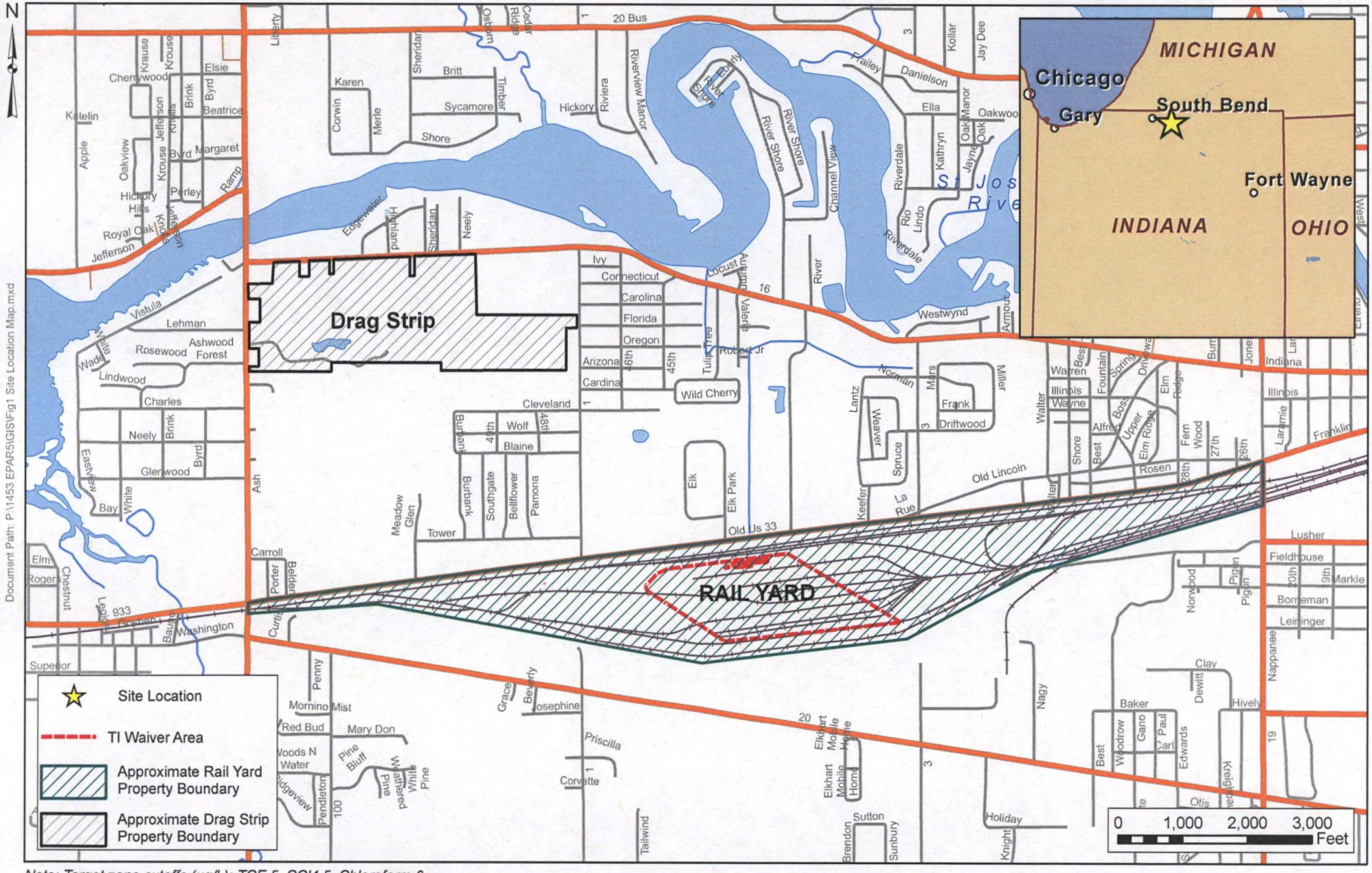
Performance measurements for the drag strip area have not yet been developed. According to the November 25, 2003 work plan for the pilot GCW system, performance measures for the drag strip are to be developed when the full-scale remedy is implemented.

APPENDIX B – ADDITONAL SITE INFORMATION

Attachments

Figures
Public Notice
List of Documents Reviewed
S.S. Papadopulos Report
Site Inspection Checklist
Interviews
Photos Documenting Site Conditions
Comments received from Indiana Department of Environmental Management
EPA November 6, 2013 letter to the Settling PRPs

Figures



Note: Target zone cutoffs (ug/L): TCE 5, CCl4 5, Chloroform 6

Figure 1 Site Location Map

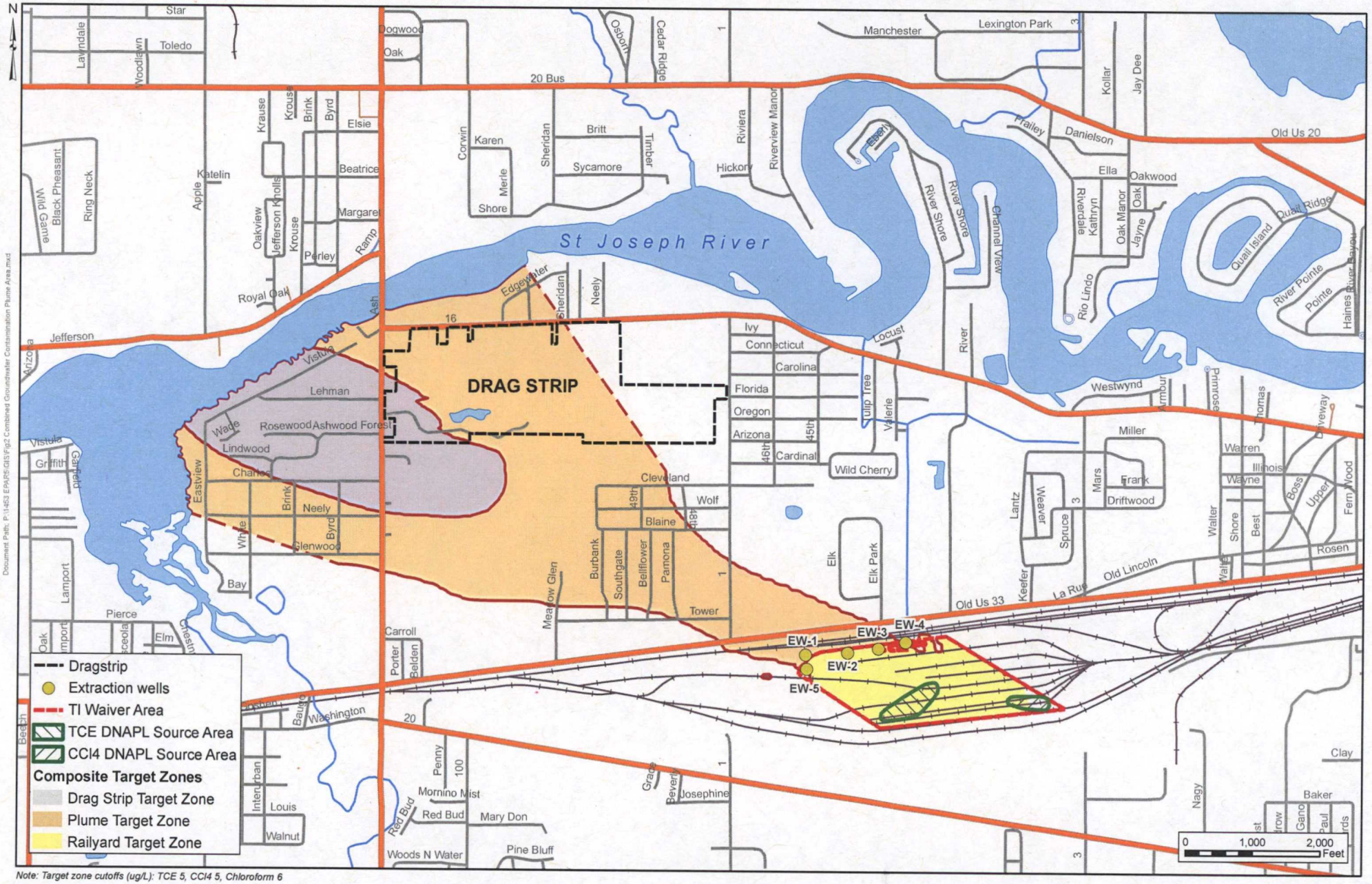


Figure 2 Combined Groundwater Contamination Plume Area

Public Notice

Elkhart Truth Newspaper Ad: September 10, 2013

could be erratic — threatening one day, apologetic over his behavior the next. He wonders if the suspect harbored some sort of animosity toward the operators of Saleh's.

"Let's put it this way, he was like a ticking time bomb," Sinclair says.

Accordingly, he counsels a measure of caution. Even before, Sinclair says he had suggested installing a bullet-proof window to shield the cashier at Saleh's from customers. He still thinks that's a good idea.

Still, like Almanaseer, he's not suggesting shuttering the operation. The family of Bhatti and Singh, for one thing, still need a livelihood.

"They got bills to pay," he says. "Life goes on for the living."

for congressional support of a military strike against Syria, and declined to say what he would do if lawmakers reject his call to back retaliation for a chemical weapons attack last month.

The president made his comments as a glimmer of a possible diplomatic solution appeared after months of defiance from the Russian-backed government of President Bashar Assad in Syria. In a rapid response, Senate Majority Leader Harry Reid cited "international discussions" in unexpectedly postponing a test vote originally set for Wednesday on Obama's call for legislation backing a military strike.

In a series of six network interviews planned as part of a furious lobbying campaign in Congress, Obama said statements suggesting that Syria might agree to surrender control of its chemical weapons stockpile were a potential — unusual for any politician — of conceding he may lose his campaign in Congress for legislation authorizing a military strike. "I wouldn't say I'm confident" of the outcome, he said.

"I think it's fair to say that I haven't decided" on a next step if Congress turns its back, the president told NBC, part of a furious lobbying campaign aimed at winning support from dubious lawmakers as well as a war-weary public.

The president picked up a smattering of support but also suffered a reversal when Sen. Johnny Isakson, a Georgia Republican, announced he had switched from a backer of military action to an opponent.

"They're in tough shape. It is getting late," said Rep. Peter King, R-N.Y., after he and other lawmakers emerged from a closed-door meeting with administration officials. The New York Republican folded into the White House bid to avert a humiliating defeat over the next 10 days. Obama met with members of the Congressional Black Caucus during the day, and arranged a trip to the Capitol as well as a prime-time speech from the East Room of the White House on Tuesday.

In the Senate, Reid said he had discussed a delay in Wednesday's scheduled initial vote with the president.

Earlier, Reid had spoken strongly in support of the president's request.

"Today, many Americans say that these atrocities are none of our business, that they're not our concern," the Nevada Democrat said of Assad's alleged gassing of civilians on Aug. 21. "I disagree. Any time the powerful turn such weapons of terror and destruction against the powerless, it is our business."

Carrier delivery of The Elkhart Truth is available in Elkhart County and surrounding communities. Seven-day delivery is $15.75 per month. Weekend delivery (Thursday, Friday, Saturday and Sunday) is $13.80 per month. Extended weekend subscription (Saturday, Sunday, Monday and Tuesday) is $13.80 per month. Sunday-only delivery is $8.50 per month.

CLASSIFIED ADS

522-5252 from 8 a.m. to 5 p.m. weekdays, or visit the Elkhart office. Email: ads@etruth.com.

ERRORS

Stories should be fair, accurate and balanced. If you do not feel we have met that standard, please call and we'll address your concerns. We try to publish corrections in the next edition. To report an error of substance or request a clarification, call 294-1661, and ask for the person who wrote the story. If you do not know who wrote the story, or you leave a message for them and do not get a response within 24 hours, please call managing editor Marshall V. King at 296-5805.

EPA Begins Review Of Conrail Rail Yard Site

Elkhart, Indiana

U.S. Environmental Protection Agency is conducting a five-year review of the Conrail Rail Yard Site in Elkhart, Indiana. The site includes a 675 acre rail yard located within the southwestern city limits bounded by US33 and Mishawaka Road and between State Routes 19 and 219. The site also includes an area near Osceola Drag Strip. The Superfund law requires regular checkups of sites that have been cleaned up – with waste managed on-site – to make sure the cleanup continues to protect people and the environment. This is the fourth five-year review of this site.

The EPA's cleanup of groundwater contamination at the site consists of a containment/treatment system located at the rail yard and a groundwater treatment well near the Osceola Drag Strip.

More information is available at the Elkhart Public Library, 300 South Second St., and at http://www.epa.gov/region5/cleanup/conrail/index.html. The current five-year review is expected to be completed in June 2014.

The five-year review is an opportunity for you to tell EPA about site conditions and any concerns you have. Contact:

Janet Pope
Community Involvement Coordinator
312-353-0628
pope.janet@epa.gov

Tim Drexler
Remedial Project Manager
312-353-4367
drexler.timothy@epa.gov

You may call EPA toll-free at 800-621-8431, 8:30 a.m. to 4:30 p.m., weekdays.

13478

WAR From Page A1

happened to those letters."

His mother kept all of Garman's letters to her, and the many pictures he sent home. After the war, she gave him the pictures and he still has many of them, Garman said.

Garman was hospitalized after the war for 119 days because he had a nervous breakdown, Jean Garman, his wife, said.

"His mother said he was a mess when he came home," Jean Garman said. "I didn't know him then."

Garman met Jean when she was working as a cashier at a local grocery store. He was ready to settle down, he remembered.

"The best thing that ever happened to me after the war was meeting my wife," Garman said.

He and Jean moved into a house in Elkhart in 1958, and they've lived there since. Garman worked for NIRCO for 44 years.

"As I look back on my life, there isn't a thing I would change," Garman said. "Everything had a purpose."

Fair play

Because of a correspondent's error, the admission fee for Bonneyville Mill Heritage Day was listed incorrectly. The prices are $3 per person or $7 per vehicle.

The event will run from 9 a.m. to 5 p.m. at Bonneyville Mill County Park, 53373 C.R. 131, two miles east of Bristol on S.R. 120.

The *Truth* regrets the error.

List of Documents Reviewed

S.S. Papadopulos & Associates, Remedy Performance Evaluation in Support of Fourth Five-Year Review, Conrail Superfund Site, Elkhart, Indiana. May 9, 2014

URS, Addendum 2 Final Design Report DRAFT, Conrail Railyard Superfund Site, Elkhart, Indiana. May 16, 2014.

URS, Benthic Invertebrate Data; First Remedial Design/Remedial Action, Conrail Railyard Superfund Site, Elkhart, Indiana. May 17, 2002.

URS, Revised Text of Workplan for Relocation and Pilot Testing of GCW Treatment System, Osceola Drag Strip, Conrail Railyard Superfund Site, Elkhart, Indiana. November 25, 2003.

URS, Final Design Report, Conrail Railyard Superfund Site Containment Groundwater Pumping and Treatment System, Elkhart, Indiana. July 14, 2003.

URS, Institutional Controls Annual Report, Conrail Rail Yard Superfund Site, Elkhart, Indiana, April 1, 2014.

URS, Monthly and Annual Reports, Conrail Railyard Superfund Site, Elkhart, Indiana. 2009-2014.

URS, Technical Memorandum: Groundwater Plume Stability Analysis, Conrail Railyard Superfund Site, Elkhart, Indiana, December 13, 2013.

URS, Year 9 Performance Evaluation DRAFT, Conrail Railyard Superfund Site, Elkhart, Indiana, April 30, 2014.

U.S. District Court for Northern District of Indiana South Bend Division, Consent Decree, United States of America vs. Consolidated Rail Corp. vs. Penn Central Corp. et al.. November 10, 1997.

USEPA, Unilateral Administrative Order for Remedial Design and Remedial Action. July 7, 1992

USEPA, Record of Decision, Conrail Rail Yard Site, Elkhart, Indiana. September 9, 1994.

USEPA, Record of Decision Amendment to Change Groundwater Remedy, Conrail Rail Yard Superfund Site, Elkhart, Indiana. September 27, 2000.

USEPA, Preliminary Close-out Report, Conrail Rail Yard, Elkhart, Indiana, July 12, 2004.

USEPA, Five-Year Review Report for Conrail Rail Yard, City of Elkhart, Indiana. June 15, 2009.

S.S. Papadopulos Report

Remedy Performance Evaluation in Support of Fourth Five-Year Review

Conrail Superfund Site, Elkhart, Indiana

S.S. PAPADOPULOS & ASSOCIATES, INC.
Environmental & Water-Resource Consultants

May 9, 2014

7944 Wisconsin Avenue, Bethesda, Maryland 20814-3620 • (301) 718-8900

Remedy Performance Evaluation in Support of Fourth Five-Year Review

Conrail Superfund Site, Elkhart, Indiana

Prepared for:

U.S. EPA Region 5

Prepared by:

S.S. PAPADOPULOS & ASSOCIATES, INC.
Environmental & Water-Resource Consultants

May 9, 2014

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Executive Summary

This Report has been prepared by S.S. Papadopulos & Associates, Inc. (SSP&A) on behalf of the U.S. Environmental Protection Agency (U.S. EPA), Region V, Groundwater Evaluation and Optimization System (GEOS) program to summarize the performance of the remedies in place at the Conrail Superfund Site located in the City of Elkhart, Indiana. The evaluations summarized in this report comprise: (a) analyses of contaminant concentrations and trends at monitoring and extraction wells; (b) mapping of the spatial extent of contaminated groundwater; (c) analysis of the spatial extent of hydraulic containment developed by the Rail Yard pump-and-treat system prior to, and following, addition of two extraction wells, and (d) evaluation of the performance of the Drag Strip groundwater circulation well (GCW) remedy. The principal conclusions and recommendations reached in this report are:

- The addition of EW-1 and EW-5 to the Rail Yard pump-and-treat (P&T) system provides sufficient capacity to fully capture both Rail Yard dense non-aqueous phase liquid (DNAPL) source zones. Hydraulic containment of the west (trichloroethene [TCE]) DNAPL source zone was maintained over all post-remedy-upgrade monitoring events. However, hydraulic containment of the east (carbon tetrachloride [CCl_4]) DNAPL zone was not consistently maintained. Re-balancing of the extraction rates in favor of the eastern P&T wells is likely to provide hydraulic containment of both the CCl_4 and TCE DNAPL source zones.
- The Drag Strip remedy is effective in recovering local source mass: however, its influence is not sufficiently large to control and remediate the sources in the Drag Strip area. Additional remedial efforts are required to protect human health and mitigate the risk of exposure via inhalation of indoor vapors in the residential area dowgradient of the Drag Strip.
- Although most concentrations are decreasing, this report confirms results presented by the U.S. EPA (2013a) showing that concentrations above cleanup levels are increasing in some Drag Strip area monitoring wells. This occurrence is interpreted as portions of the previously uncontained Rail Yard plume reaches the Drag Strip. Also, concentrations above cleanup levels are increasing in well MW-07D, located in the residential neighborhood downgradient of the Drag Strip.
- Data collected over the last five years do not clearly define the lateral extent of groundwater contamination (defined as a Target Zone) at concentrations above cleanup levels: it may be appropriate to re-sample some wells that are beyond the current monitoring network on an infrequent basis (e.g., every 5 years) to confirm the lateral extent of the Target Zone.

REPORT

Section 1
Introduction

This Report has been prepared by S.S. Papadopulos & Associates, Inc. (SSP&A) on behalf of the U.S. Environmental Protection Agency (U.S. EPA), Region V, Groundwater Evaluation and Optimization System (GEOS) program to support the preparation of the calendar year (CY) 2014 Five-Year review report for the Conrail Rail Yard Superfund Site (the Conrail site, or site), located in the City of Elkhart, Indiana (Figure 1). This report presents the results of remedy performance analyses conducted on the basis of data collected over the last five years, and prior to that where appropriate.

Analyses presented herein comprise evaluations of: (a) contaminant concentrations magnitudes and trends at monitoring and extraction wells; (b) the spatial extent of contaminated groundwater; (c) the spatial extent of hydraulic containment developed by the Rail Yard groundwater P&T system prior to, and following, the addition of two extraction wells; and (d) an evaluation of the Drag Strip remedy, including extraction, containment and concentrations over time. The results of supplemental analyses performed over the last five years by SSP&A and others that supported EPA's recommendations for the site are also summarized (U.S. EPA, 2013a and 2013b).

The methods and analyses employed in preparation of this report relied on information provided by U.S. EPA and URS, consultants to the Settling Parties at the Conrail site. The software programs used to complete the analyses are freely available upon request.

Section 2
Background

Remedial Action Objectives (RAOs)

For groundwater contamination at the Conrail Site, the cleanup objectives are the maximum contaminant levels (MCLs) for the following compounds (U.S. EPA, 1994, 2000):

- Trichloroethylene (TCE) - 5 µg/L
- Carbon tetrachloride (CCl4) - 5 µg/L
- 1,1-dichloroethene (1,1-DCE) - 7 µg/L
- 1,2-dichloroethene (1,2-DCE) - 70 µg/L
- Chloroform - 6 µg/L
- Tetrachloroethylene (PCE) - 5 µg/L
- Vinyl chloride (VC) - 2 µg/L

A technical impracticability (TI) waiver for the DNAPL source areas on the Rail Yard waives these RAOs within the area to which the TI waiver applies. Instead, hydraulic containment is required for these DNAPL source areas.

Conclusions of the Last Five Year Review(s)

Following the recommendations of the last Five-Year Review report (U.S. EPA, 2009), additional investigation activities (URS, 2013a) and remedial upgrades took place at the Conrail site. Monitoring wells and two extraction wells (EW-1 and EW-5) were added and the treatment system capacity was increased at the Rail Yard (URS, 2011a; URS, 2013b), subsequent to confirmation by URS of the incomplete capture of the Rail Yard DNAPL Source Zones (URS, 2011b). For the Drag Strip area, source zone investigations were performed, and monitoring wells were added (URS, 2013a). Remedial upgrades and additional groundwater, indoor air and subslab vapor investigations are currently being developed by the Settling Parties (URS, 2013c).

Section 3
Statistical Analyses of Groundwater Concentrations

SSP&A completed analyses of groundwater concentration data for wells throughout the Conrail site, using software developed by Subterranean Research, Inc. ("PAM"). Data used for these analyses were provided by URS, for the period September 2008–December 2013 and retrieved from U.S. EPA's EQuIS Database (updated through June 2013); together with quarterly monitoring data (through December 2013) obtained from the file "qry_2013_GW_Monitoring_Data.xls" provided by URS.

Tables 1 and 2 summarize significant results; complete tabulated results of the PAM calculations are provided in Appendix A. The PAM statistical software program was used to complete the following three calculations for each combination of well, contaminant of concern (COC), and performance criteria (cleanup goals):

1. *Standard Test: compares the one-sided 95% upper confidence limit (UCL) constructed using data from the four most recent samples collected since January 1, 2012 to COC-specific cleanup standards. UCL calculations replace analytical results reported as 'not detected' ('nondetects'), by one-half of the median of the detection limit for a given constituent within the dataset used for calculation. The Standard Test reports the result (Compliance, Exceedance, or None); the 95% upper confidence limit (UCL) concentration; and the COC specific standard, in consistent units. Note that "None" generally indicates that the Standard Test result is inconclusive because the reporting limit is greater than the COC-specific standard, or that insufficient data are available for the period of interest.*
2. *Trend Test: identifies upward or downward concentration trends. The trend method used is the Sen's Test, a non-parametric trend analysis similar to the Mann-Kendall test. The trend statistics reported are the slope result (Upward, Downward, No Trend, NR); the slope estimate (in units per year); and the confidence level attained (Mann-Kendall p-value (actually, 100(1-p)%). Because the trend is calculated on the natural logarithm of the concentration, the slope estimate is reported in terms of the log of the concentration units per year. Note that "NR" indicates that the trend could not be calculated generally because all results are below the reporting limit. The trend slope of the log-transformed data is indicated in parenthesis below, with units of "1/yr".*
3. *Baseline Test: compares recent data to a baseline level that is calculated from the first 8 available samples collected at each sample location. The Baseline Test reports the result (Better, Worse, No Change); and the 95% upper prediction limit (UPL).*

Results of the Standard and Trend Tests are summarized in Tables 1 and 2, respectively.

The Standard Test results indicate that TCE exhibits the largest number of cleanup level exceedances (46), and that these exceedances are distributed across the site. CCl_4 (28 exceedances) and chloroform (24 exceedances) exhibit a similar number of exceedances, that occur at similar locations, which is consistent with the interpretation that the chloroform is a degradation product of CCl_4. A single exceedance of cis-1,2-DCE (128.9 µg/L UCL) is observed in MW-3D, and a single exceedance of PCE (10 µg/L UCL) is observed in DSMW-

07S. The geographic distribution of the results of the Standard Test (Exceedance, Compliance, None) for TCE, CCl_4, and chloroform, are illustrated in Figures 2 through 4. These three COCs have the highest frequency of cleanup level exceedances at the site.

The geographic distribution of the results of the Trend Test for the COCs that presented standard exceedances and increasing trends (*i.e.*, TCE, CCl_4 and Chloroform) are illustrated in Figures 5, 6, and 7, respectively. Positive trend slope estimates that indicate increasing trends (with a Mann-Kendall confidence level >95%) are observed at the following wells:

- Trichloroethene (TCE):
  - Drag Strip: DSMW-07I, DSMW-09I, MW-05D
  - Rail Yard: GS-4
- Carbon Tetrachloride (CCl_4):
  - Drag Strip: MW-07D, located in the residential neighborhood (10308 Lehman)
  - Rail Yard: MW-14
- Chloroform:
  - Drag Strip: DSMW-08S
  - Rail Yard: MW-14
- Cis-1,2-Dichloroethene:
  - Drag Strip: DSMW-08D

Increasing trends at confidence levels of $\geq$ 90% are also observed for TCE in wells DSMW-07S (92% confidence level/91 µg/L UCL), DSMW-10S (92% confidence level/1.3 µg/L UCL), and MW-23D (90% confidence level/ 67.1 µg/L UCL), and for CCL_4 in well DSMW-07I (93% confidence level/1276 µg/L UCL). Most wells exhibiting increasing concentration trends are located at the Drag Strip (>95% at wells DSMW-07I, DSMW-08S, DSMW-09I, MW-05D, and MW-07D; >90% at wells DSMW-07S and DSMW-10S). However, some Rail Yard wells also exhibit increasing trends.

Wells showing increasing trends (>95%) at the Rail Yard are MW-14 (located downgradient of extraction wells EW-1 and EW-2), and GS-4 (located east of extraction well EW-4).

Wells exhibiting both increasing trends and an exceedance of the cleanup criteria are:

- Trichloroethene (TCE):
  - Drag Strip: DSMW-07S, DSMW-07I, DSMW-09I, MW-05D; and
  - Rail Yard: well GS-4
- Carbon Tetrachloride (CCl_4):
  - Drag Strip: DSMW-07I and MW-07D; a well located in the residential neighborhood (10308 Lehman).

Concentration time-series for wells GS-4, MW-05D, MW-07D, DSMW-07I, DSMW-09I for chemicals with increasing trends (>95% confidence level) that exceed cleanup standards are shown in Figures 8 through 12. The concentration time-series for well DSMW-07S, where TCE is above the standard and concentrations exhibit an increasing trend above 90% confidence, is shown in Figure 13. The concentration time-series in wells DSMW-07I, where CCl_4 exceedances

and increasing concentration trends above a 90% confidence level are observed, are shown in Figure 14.

These calculations confirm the results presented by the U.S. EPA (2013a) showing that increasing concentration trends are present in Drag Strip monitoring wells. This is interpreted as the previously uncontained Rail Yard plume reaching the Drag Strip. The locations exhibiting increasing concentration trends also include monitoring well MW-07D which is located in the residential neighborhood downgradient of the Drag Strip.

Section 4
Target Zones

The U.S. EPA Region V GEOS program defines a Target Zone as the area or volume of an aquifer that exhibits groundwater concentrations – expressed as the 95% UCL of the mean of the recent sample data – that exceed targeted cleanup levels. Target Zone maps were constructed by URS, as requested by EPA, based on 95% UCL values calculated using results from the last four sampling quarters. Figures 15, 16 and 17 show the extent of the TCE, CCl_4 and chloroform Target Zones, interpolated in three dimensions using EVS (CTECH) (Source: URS, 2014: file "2014.01.16 Requested Conrail Plume Maps.zip").

To compare current site conditions with analyses completed as part of the previous Five-Year Review (SSP&A, 2009), SSP&A produced a composite two-dimensional Target Zone using the 95% UCL data calculated by URS, interpolated by quantile kriging. The spatial distribution was approximated using the same method and parameters as used previously (SSP&A, 2009). Target Zones for TCE, CCl_4 and chloroform are presented in Figures 18 through 20. A Composite Target Zone - constructed by superimposing the Target Zones developed for each individual COC - is presented in Figure 21.

The current Composite Target Zone extent appears larger than the Composite Target Zone computed in 2009. This difference can be, in part, explained by the absence of recent monitoring data from some residential wells. In particular, to construct the 2009 TCE Target Zone, data from 38 residential wells were used (30 of which exhibited non-detect values, and 8 of which exhibited TCE (UCL) concentrations ranging from 0.56 to 204 µg/L). These wells have not been sampled since the last Five-Year Review period and are not included in the current analysis. As shown above, some wells located in the Drag Strip area exhibit increasing concentrations, suggesting that the plume may be expanding or migrating in those areas. The current Composite Target Zone also shows that data collected over the last five years do not clearly define the lateral extent of the groundwater contamination at concentrations above cleanup levels.

URS published a Plume Stability Analysis (2014, [revised]). The conclusion reached by URS from the plume stability analysis is that the plume is essentially stable – i.e., that *"the plume is stable as there is no evidence from this analysis to suggest an increasing concentration trend in the offsite groundwater plume"* (URS, 2014 [revised]). URS also concludes that the contaminant mass flux analysis suggests that the flux calculated to be passing through a transect upgradient of the Drag Strip is essentially unchanged from 2010 through September 2013. However, we note the following:

- The finding of no significant downward trend is consistent with the interpretation that historically the upgradient remedy at the Rail Yard did not successfully and completely contain the Rail Yard DNAPL source zones
- The behavior of the plume at lower concentrations (i.e., below 100 ug/L) was not presented by URS, which may show trends not apparent at higher concentrations;

- The trend-line calculated from the mass flux values (URS 2013: Figure 5 Plume Parameter Trends) appears to be highly influenced by a single sampling event during 2010, which may result in the finding of no significant trend

The center of mass analysis performed by URS suggests that the plume is moving downgradient, toward the residential area located between the Drag Strip and the St. Joseph River. This finding is consistent with expectations and with the Natural Gradient Flushing element of the ROD.

Section 5
Rail Yard Assessment

Capture Zone Calculations

Based on the recommendations of the 2009 Five Year Report, two new extraction wells (EW-1 and EW-5) were installed during the winter of 2013 to improve capture of the contaminant source zones present at the Rail Yard. URS indicated (email from T. Limke dated 2/21/2013) that the five extraction wells have been operating at relatively constant rates starting on February 14, 2013.

To evaluate the effectiveness of the remedy upgrade, SSP&A and URS separately performed water level mapping and hydraulic capture zone analyses. Water level data collected by URS since September 2009 and through June 2013 on a monthly basis were downloaded from U.S. EPA's EQuIS database. Water level data collected between July and December 2013 were also provided by URS in file *EPAR5GWTR_v2.txt* contained in zip file *20140128.IND000715490.EPARegion5EDD.zip.* Groundwater extraction data were obtained from U.S. EPA (file *DT_Pump_rate_091009to062013.xlsx* for data from September 2009 through June 2013) and from URS file *EPAR5EIW_v2.txt* contained in zip file 20140128.*IND000715490.EPARegion5EDD.zip* for data collected between July and December 2013.

Pumping rates for the Rail Yard extraction wells over the most recent Five-Year period are shown in Figure 22. The total volume pumped during the period September 1, 2009 - January 1, 2014, is approximately 1100 million gallons, as shown in Figure 23.

To perform the analyses, SSP&A used water level data from wells corresponding to the same well-group selected by URS in February 2013 to perform the capture zone analysis representative of the intermediate aquifer zone (Rail Yard System optimization – Event #1)(Table 3). Data from MW-16 and MW-34I were excluded as recommended by SSP&A (2013):

> *Those two wells appear to impart anomalous trends on the potentiometric surface and were excluded from the analysis to evaluate their impacts. Well MW-16 is the well with the shallowest well screen of the well subgroup selected by URS for the capture zone analysis. This well was not included by URS in the capture zone analysis that was performed in 2010 (see Figures 7 and 8). Well MW-34I (screened between 40 and 50 ft bgs) is also shallower than nearby well OW5-I (screened between 75 and 85 ft bgs) and may represent the effect of vertical hydraulic gradient in the vicinity of the well.*

The software KT3D_H2O (SSP&A, 2008) used to perform the first analysis, employing a universal kriging and incorporating linear drift (trend) terms in the X (easting) and Y (northing) directions, with a drift term that accounts for pumping effects (Tonkin and Larson, 2002). Approximate capture zones were generated using a particle tracking routine included in KT3D_H2O. Using the tracking routine, particles are released over the gridded domain and the fate of each particle is recorded and used to estimate the extent of hydraulic capture. This method has also been employed by URS, the consultant to the Settling Parties, to evaluate performance of the remedy since 2011 (URS, 2011b).

The following variogram parameters were used by SSP&A:

- Type: Spherical
- Variance (c) = 2
- Nugget (c0) = 0
- Range ah_max = ah_min = 4000 feet

As was performed by SSP&A in 2009, Capture Frequency Maps (CFMs), were generated which describe the number of times a particle tracked on a series of mapped water level surfaces (i.e., events) is removed at an extraction well, as a fraction of the number of events mapped. For example, a frequency of 0.5 indicates that over all the events for which capture zones were calculated, the particle was captured by an extraction well 50% of the time. CFMs for two periods prior the containment system upgrade period are shown in Figures 24 and 25, with the CFM following the upgrade of the containment system (Feb-Dec 2013) shown in Figure 26.

Comparison of Figures 24 and 25 with Figure 26 shows that the extent of hydraulic containment increased substantially with the addition of extraction wells EW-1 and EW-5. The western TCE DNAPL Source zone appears to be consistently contained. However, capture of the eastern CCl_4 DNAPL Source zone is not as robust. The post-system upgrade capture frequency map (Figure 26) shows that about half of the area of the CCl_4 source zone is captured at a frequency of 0.8 or greater, and about a quarter of the CCl4 source zone is captured at a frequency of 0.3 or less. Review of individual hydraulic capture events indicate that in April 2013 full capture of both source zones was achieved: however, it appears that some portion of the area of the CCl_4 source is outside of the capture zone during most monitoring events, which is consistent with the resulting CFM.

To evaluate the sensitivity of the kriging method employed on the extent of capture, the Multi-Event-Universal-Kriging (MEUK) method was employed using the same dataset as presented in Figure 26, with the variogram range increased to 10,000 feet, while keeping other parameters unchanged. The Multi-Event Universal Kriging (MEUK) technique is an extension to the method incorporated in KT3D-H2O: the difference is that MEUK technique solves all events in single operation, rather than in independent operations. This allows the user to condition drift terms on more than one event simultaneously, by constructing a single block-diagonal UK matrix, containing one covariance-block for each event plus trend term row-column entries that may span multiple events. Solution of this single kriging matrix for all events, rather than individual matrices for each event, can for some data sets and sites improve underlying trend estimates when the spatial distribution of monitoring locations varies greatly from event to event or where there is noise present in the data. The MEUK CFM is shown in Figure 27. The results depict a slightly enlarged capture zone compared to the one depicted on Figure 26. However, because the results are similar between the methods, the results obtained using KT3D-H2O are considered reasonable.

To assess the reasonableness of the capture extents estimated by water level mapping, a simple calculation was made. The ultimate width of the capture zone, W, for a single fully penetrating recovery well extracting groundwater at a rate, Q, within a confined aquifer is equivalent to the pumping rate divided by the hydraulic gradient, i, multiplied by the aquifer transmissivity, T.

$$W = Q/(Ti) \quad (1)$$

When local recharge is relatively minor compared to the through-flow (Darcy flux) in the aquifer, this equation can also be applied in the case of an unconfined aquifer. In either case, rearranging equation (1) can provide an expected extraction rate required to develop the mapped width of capture, by multiplying the capture zone width (W) determined through water level mapping exercise by the aquifer transmissivity and hydraulic gradient: i.e., Q = WTi, where:

- T = 43,400 ft2/day (based on T= Kb= 310 ft/day x aquifer thickness of 140 ft):
  - The most recent hydraulic conductivity estimate for the Rail Yard area is 310 ft/day, based on analysis of tests in EW-2 and EW-4 (Appendix F, URS, 2013a)
- i = 0.002, the average hydraulic gradient observed in December 2013
- W=1700 ft, the observed capture width, which represents the 90% capture frequency, see Figure 26

The calculated flow rate corresponding to the observed width is about 147,560 ft^3/day or about 766 gpm. The average extraction rate over the period February - December 2013 is approximately 760 gpm, which matches closely with the estimate. Although these calculations are approximate, and some of the underlying assumptions are violated, the correspondence between the estimated required pumping and actual pumping provides some assurance that the capture maps are reasonably reliable..

Three Point Gradient Calculations

To better understand gradients in the area of the CCl_4 source zone, a three-point gradient analysis was completed using water level data available for wells BMW-6D, MW-31I, and MW-29I. These three wells form a triangle encompassing much of the CCl_4 source. The most recent gradient direction (azimuth) and magnitude (March-December 2013) – calculated with data collected when the new extraction wells are in operation – is not clearly different than prior to the expanded pumping (Figure 28). However, the gradient direction does show some pattern over time: in particular, the direction during the period March to December 2013 is consistently more northerly than at earlier times in the monitoring record such as during 2009 and 2010 (Figure 28) when gradients were more toward the northwest. This pattern is also visible on a rose diagram (Figure 29, inset).

Section 6
Drag Strip Assessment

Groundwater Circulation Well Evaluation

In 2010 and 2011, SSP&A collaborated with URS to develop a model (transient analytical element model, TTim [Bakker, 2010]) to estimate the extent of capture produced by the Drag Strip Groundwater Circulation Well (GCW) based on calibration to transient water level data collected as part of a hydraulic test. URS reproduced the results obtained with the TTim model using MODFLOW and obtained very comparable results. The extent of hydraulic capture of the GCW was evaluated and the findings summarized in Appendix J of the Five Year Investigation Report prepared by URS (URS, 2013a). URS reports the following GCW capture widths, calibrated to typical GCW operational flow rate:

- Upgradient Capture Zone: 230 feet (extraction rate of 80 gpm)
- Upper Circulation: 87 feet (injection rate of 60 gpm)
- Lower Circulation: 73 feet (injection rate of 20 gpm)

Figure 30 illustrate the GCW capture and recirculation extents, in relationship to the Drag Strip CCl_4 contaminant Target Zone. This analyses suggests that the width of capture (230 feet) represents between 10 and 15% of the width of the total extent of the CCl_4 Target Zone, measured in a direction perpendicular to groundwater flow. Figure 31 (after URS, 2013c) also shows the extent of capture of the GCW in relationship to zones of total COCs "Enrichment Area". These figures show that the GCW captures a limited portion of the contamination present at the Drag Strip.

Travel Time Estimate between Rail Yard and St. Joseph River

The increasing concentrations identified in the vicinity of the Drag Strip have been interpreted as representing the migration of previously uncontained contamination arising from the Rail Yard area. To evaluate the relationship between the Drag Strip concentrations and the upgradient Rail Yard in the context of historical incomplete containment of the Rail Yard source zones, SSP&A constructed a site-wide water level map using data from a recent site-wide monitoring event (March 2013). Particle tracking performed using this potentiometric surface and a hydraulic conductivity value (K =310 ft/day) and mobile porosity (n) of 0.2 resulted in an estimated advective time-of-travel from the Rail Yard containment system stagnation zone to the upgradient Drag Strip property line on the order of 9 years, with an additional 3 years of advective transport required to reach the St. Joseph River, as shown on Figure 32.

Section 7
Summary of Observations and Recommendations

Concentration Trends and Cleanup Level Exceedances

TCE, CCl_4 and chloroform are the main contaminants of concern at the site and continue to exceed cleanup levels. Concentrations are decreasing at most monitoring locations, however they are increasing, and exceeding cleanup levels, in wells DSMW-07S, DSMW-07I, DSMW-09I, MW-05D located on the Drag Strip, in well MW-07D located in the residential neighborhood downgradient of the Drag Strip, and in well GS-4, located downgradient of the Rail Yard. These results confirm conclusions presented by the U.S. EPA (2013a) where increasing concentrations were observed in upgradient Drag Strip monitoring wells as the Rail Yard plume reaches the Drag Strip. The current analysis also identifies increasing concentrations in the residential neighborhood downgradient of the Drag Strip (well MW-07D).

Data collected over the last five years do not clearly define the lateral extent of groundwater contamination (defined as a Target Zone) at concentrations above cleanup levels: it may be appropriate to re-sample some wells that are beyond the current monitoring network on an infrequent basis (e.g., every 5 years) to confirm the lateral extent of the Target Zone.

Rail Yard Hydraulic Capture

Under all conditions observed, hydraulic containment of the west (TCE) DNAPL source zone is maintained, whereas under certain conditions, hydraulic containment of the east (CCl_4) DNAPL zone is maintained. This is demonstrated by CFMs constructed using data collected during the period February to December 2013. Review of the operation of the P&T system, and of groundwater level data and hydraulic gradients, suggest that the re-configured P&T system has sufficient capacity to maintain hydraulic containment of both DNAPL source zones. For example, one monitoring event shows complete capture of both source zones. However, hydraulic gradients calculated for a triangle defined by the three wells in the vicinity of the CCl_4 DNAPL source zone suggest that gradients have oriented slightly to the north in recent months. It is not evident, based on the information currently available, what may have resulted in this slight change in gradients. However, this should be a focus of future data interpretation efforts by the consultants to the Settling Parties.

In the interim, consultants to the Settling Parties should consider re-balancing extraction rates on the eastern side of P&T system, to improve confidence in the hydraulic containment of the CCl_4 DNAPL source zone. Additional information gained from monitoring and site data review regarding site features that influence the flow regime in the area, or additional monitoring to the southeast of the CCl_4 DNAPL source zone, may elucidate the cause of the changing gradients in this area.

Drag Strip Groundwater Circulation Well Capture

Comparison of the extent of the Composite Target Zone with the extent of capture provided by the GCW shows that the current Drag Strip remedial system is insufficient to control the entire extent of the Drag Strip contaminant sources. To be protective of human health, and to mitigate the risk of exposure via inhalation of indoor vapors, additional remedial efforts are required to control the contamination present at the Drag Strip.

Section 8
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FIGURES

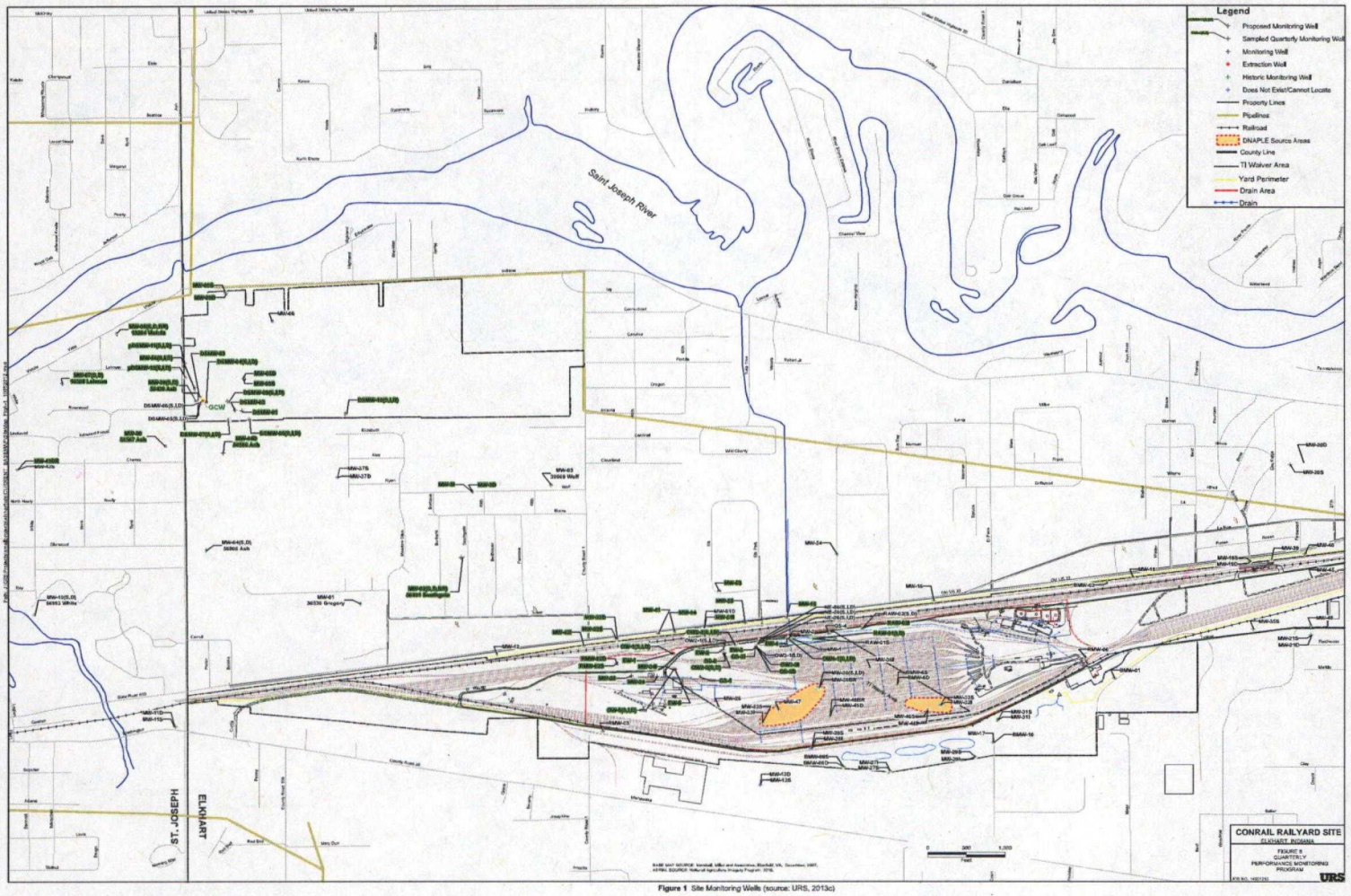

Figure 1 Site Monitoring Wells (source: URS, 2013c)

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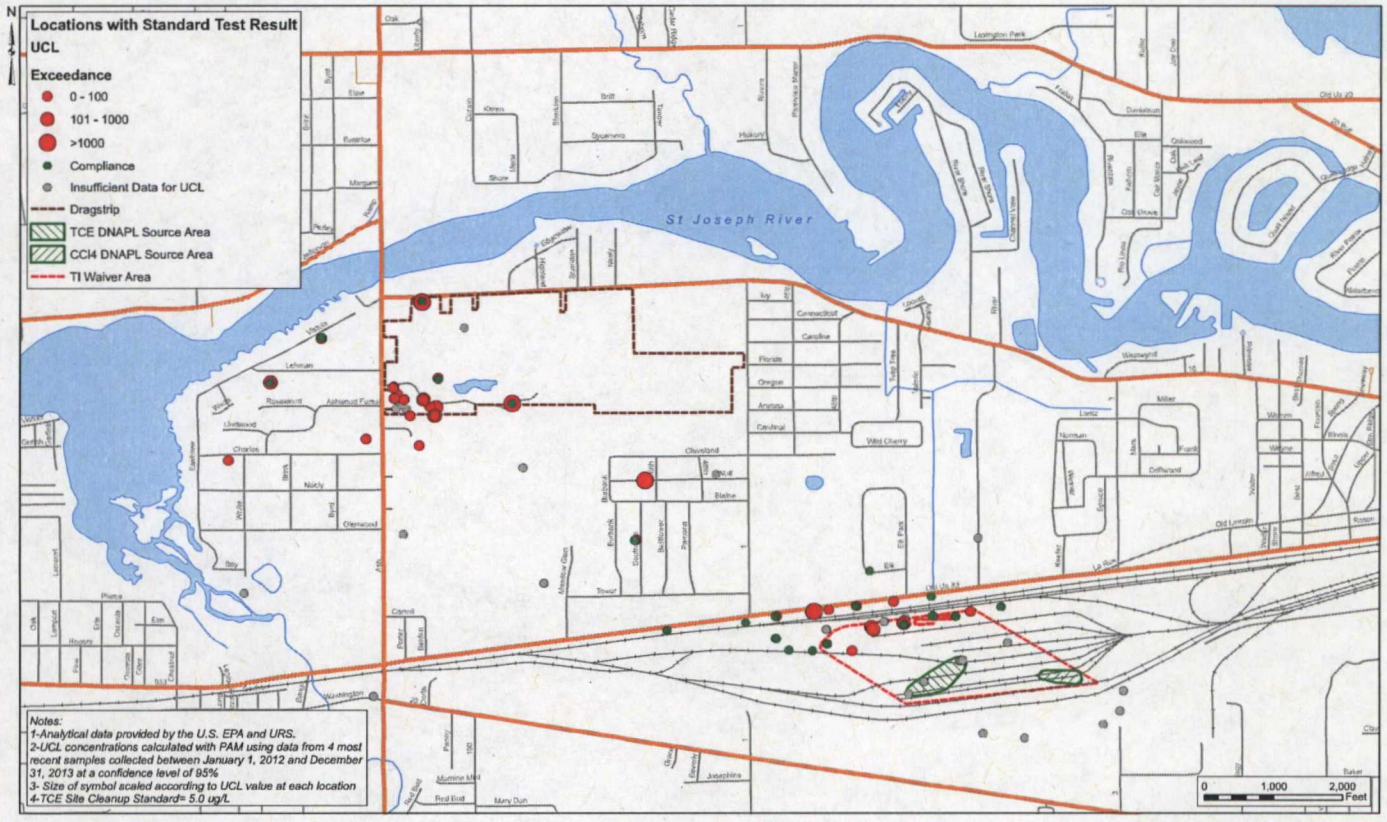

Figure 2 PAM Standard Test Results, TCE

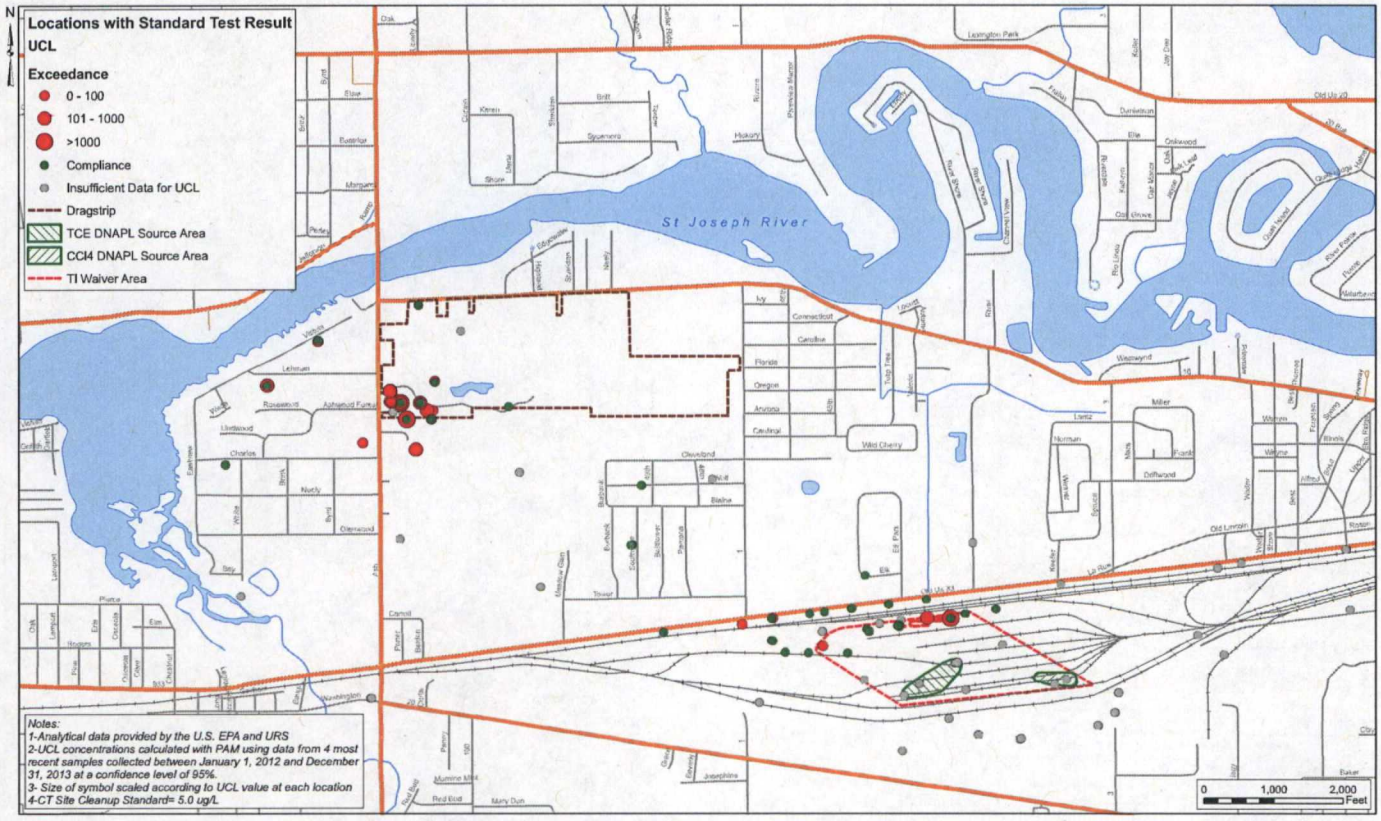

Figure 3 PAM Standard Test Results, CCl_4

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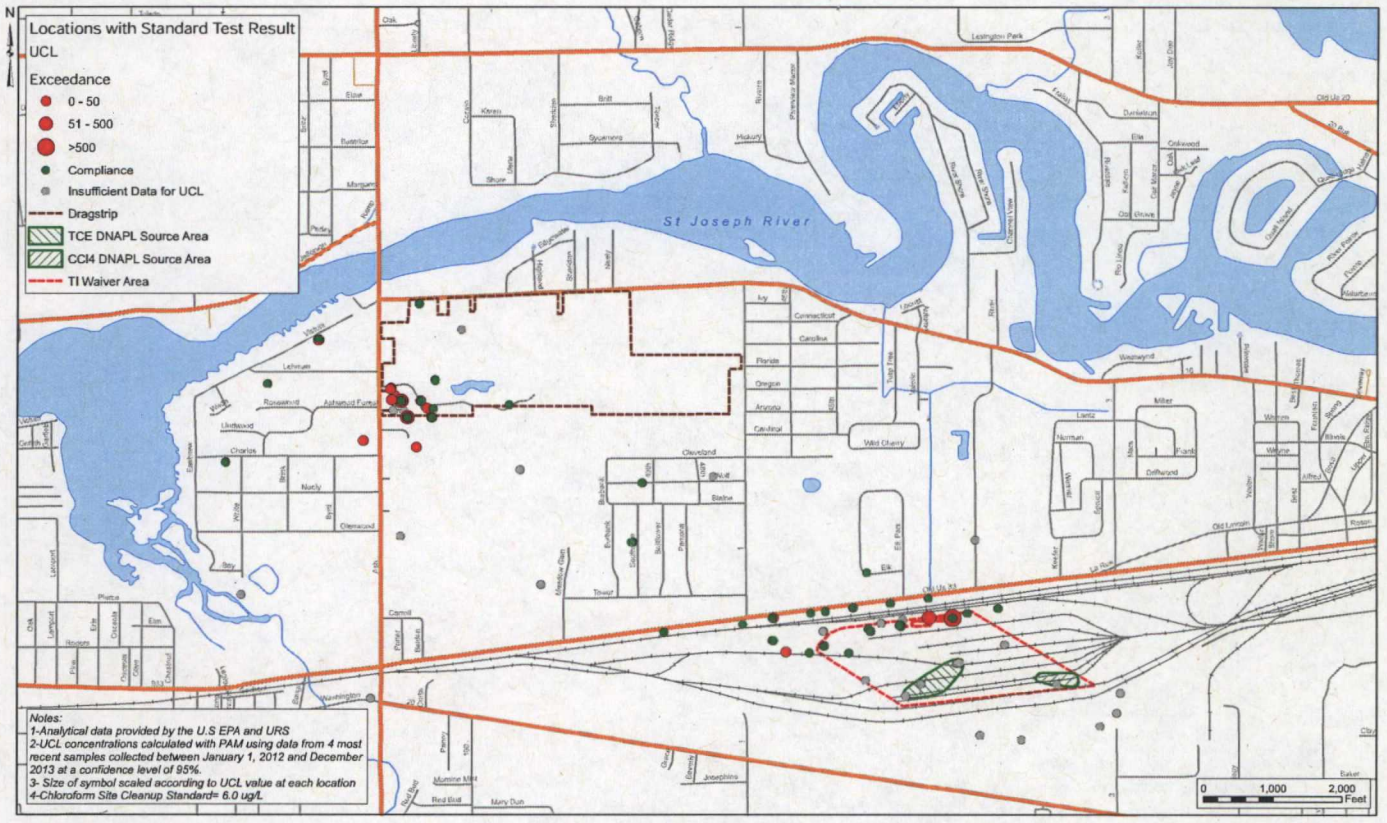

Figure 4 PAM Standard Test Results, Chloroform

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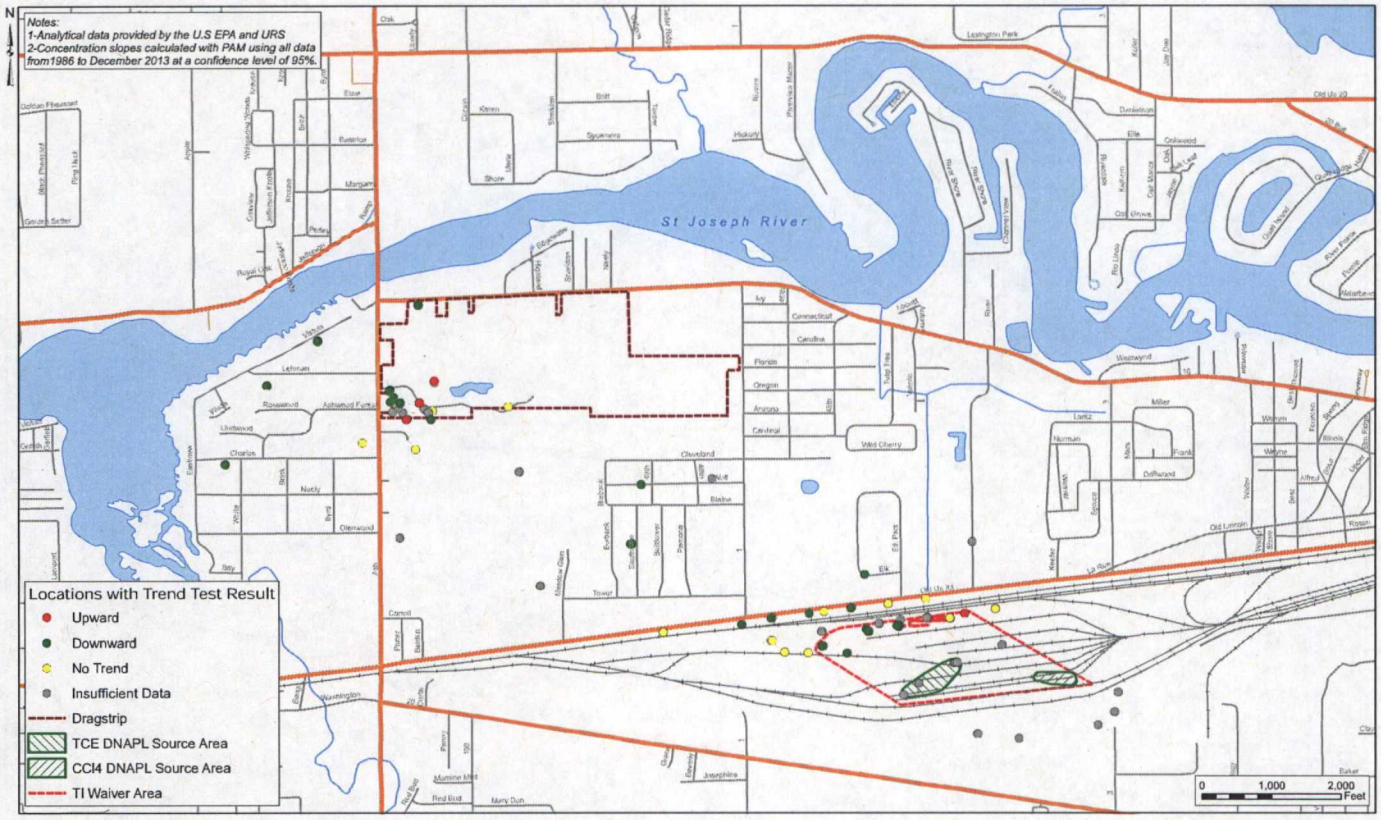


Figure 5 PAM Trend Test Results, TCE

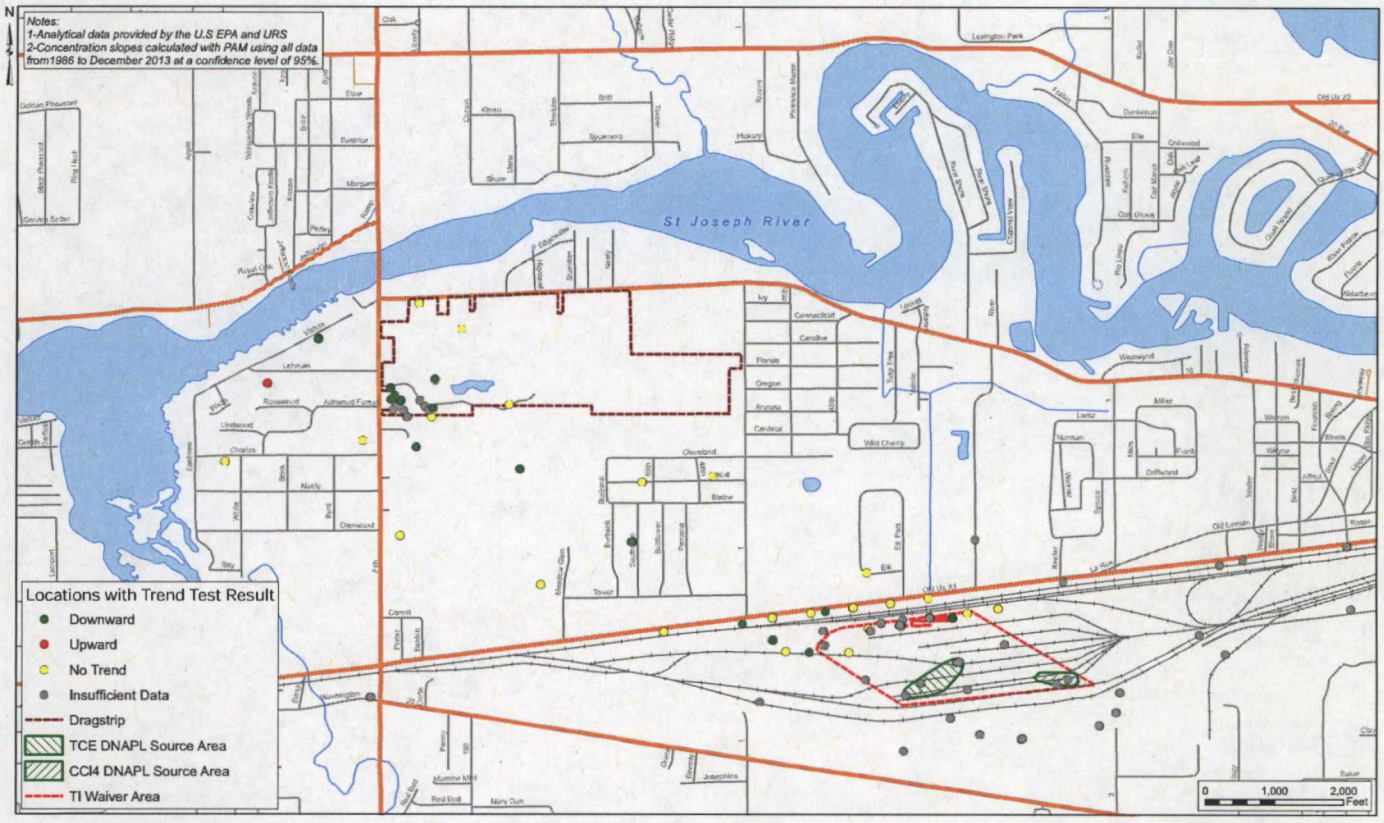


Figure 6 PAM Trend Test Results, CCl_4

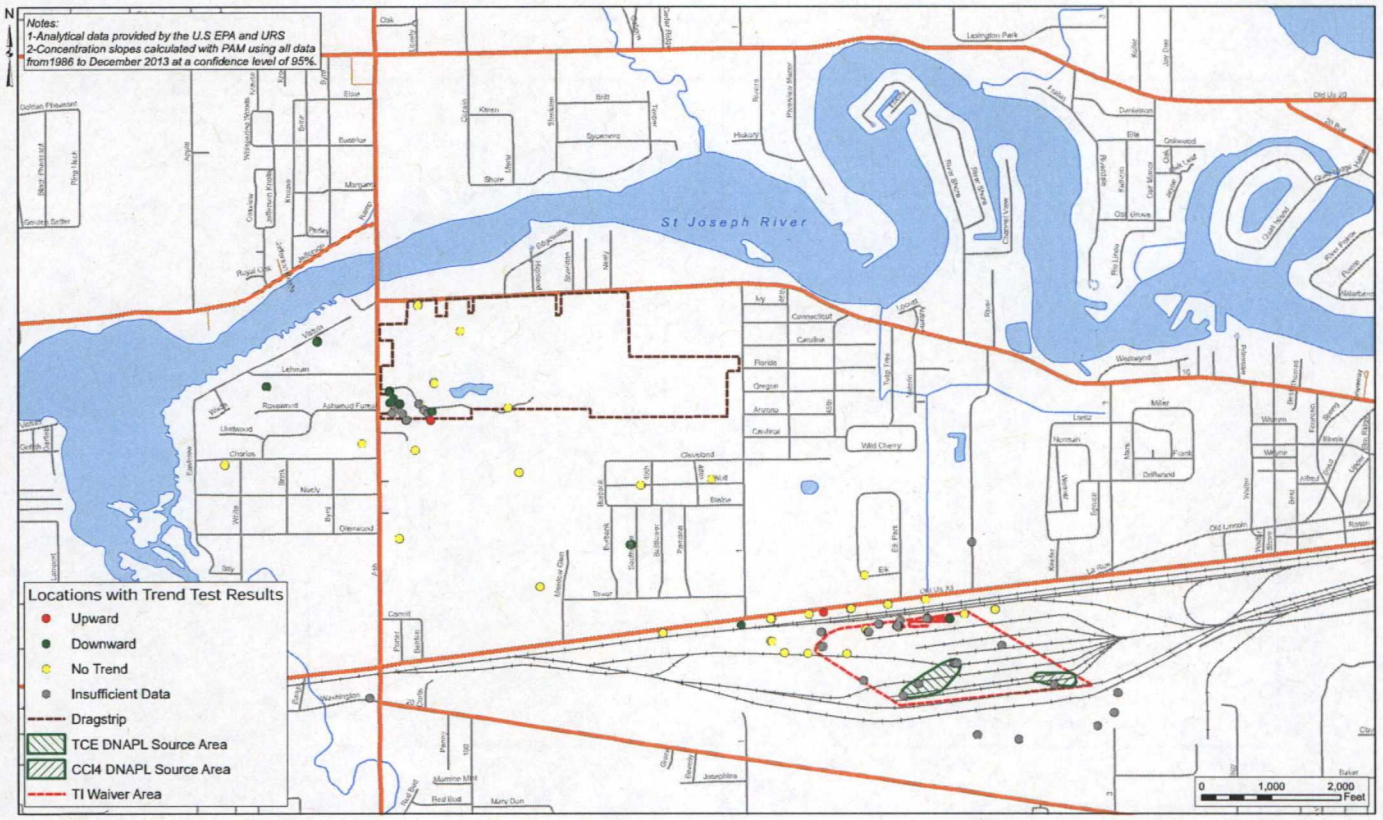


Figure 7 PAM Trend Test Results, Chloroform

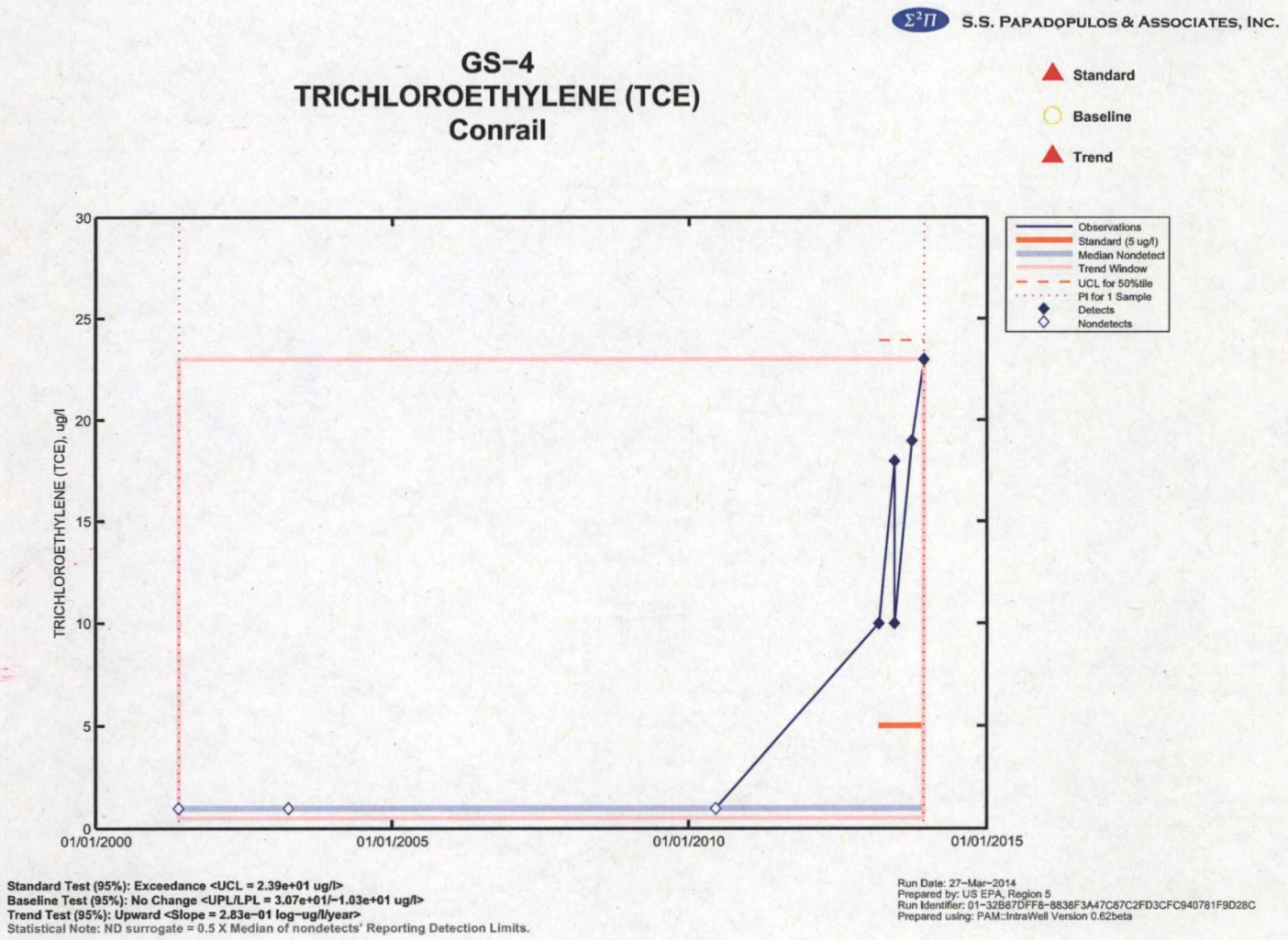


Figure 8 GS-4 Trichloroethylene (TCE) Concentrations

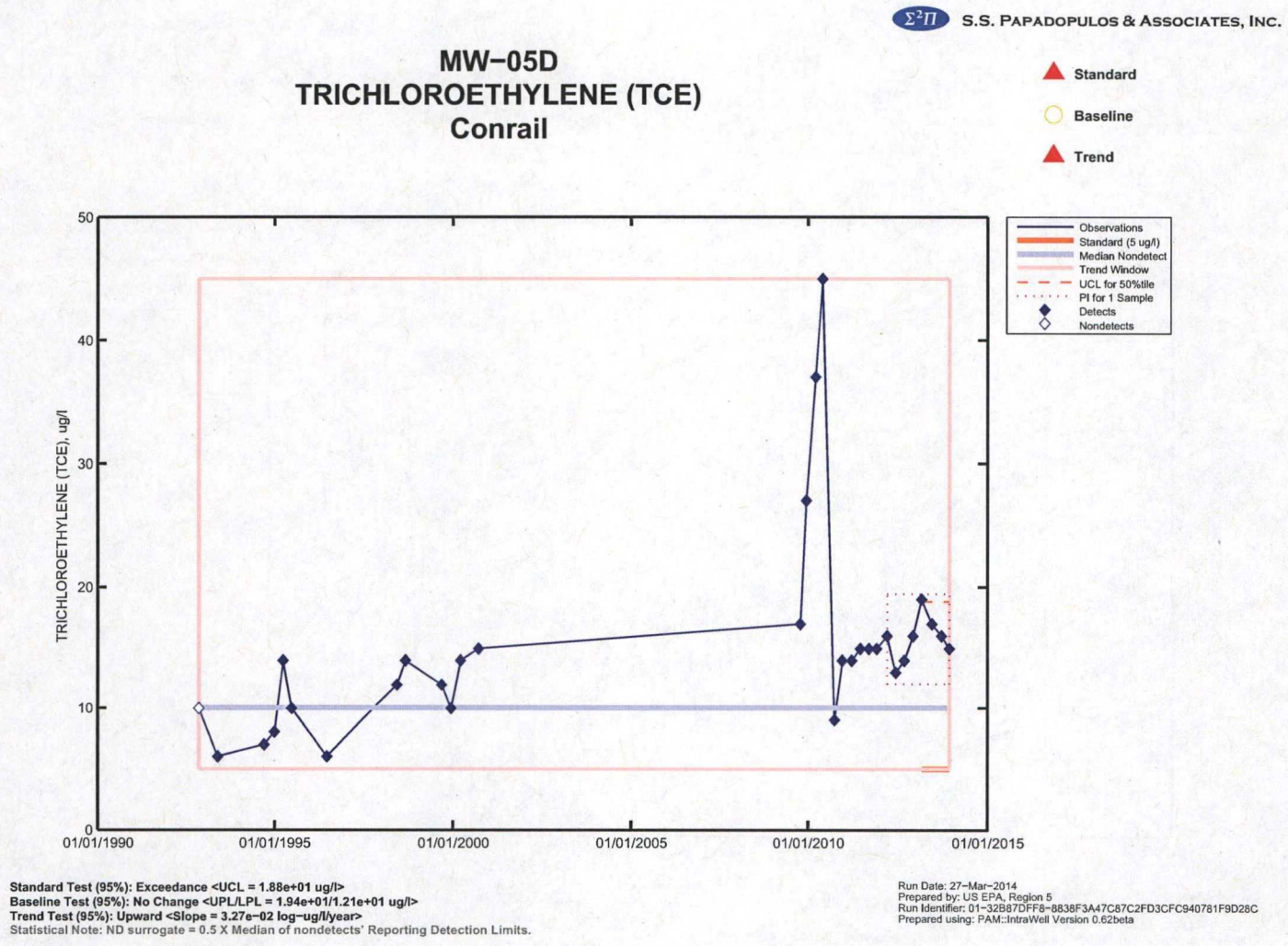


Figure 9 MW-05D Trichloroethylene (TCE) Concentrations

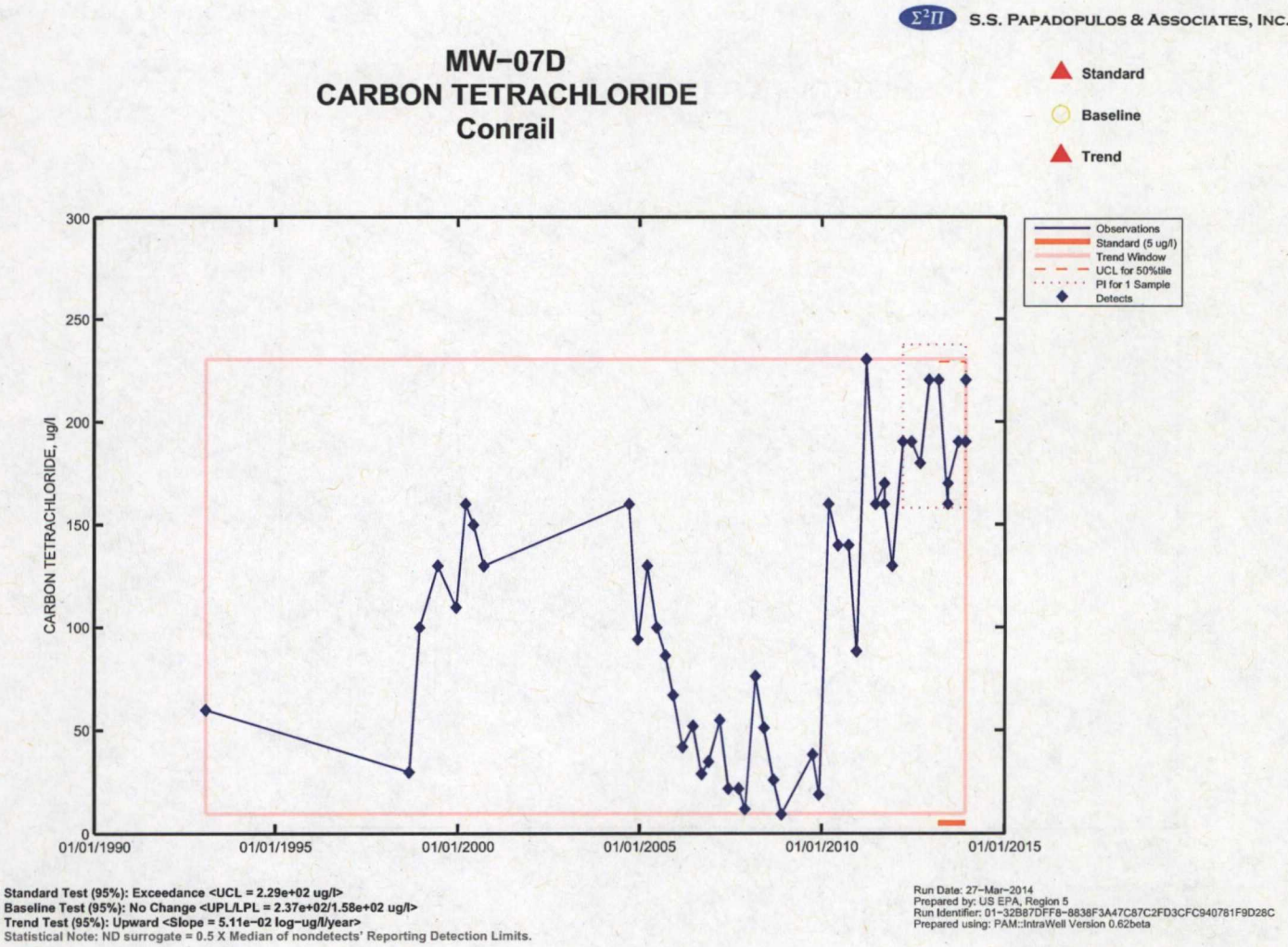


Figure 10 MW-07D Carbon Tetrachloride Concentrations

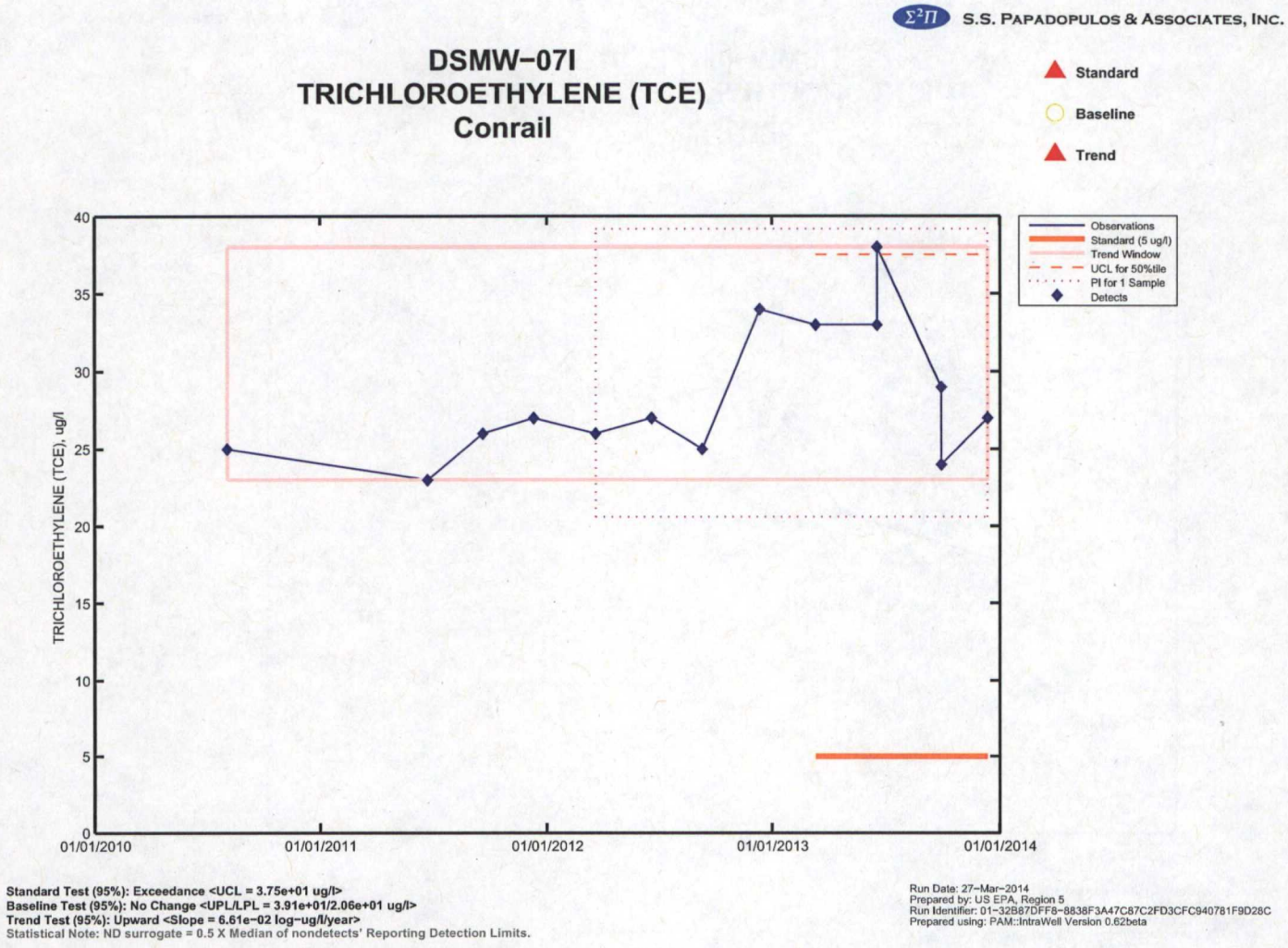


Figure 11 DSMW-07I Trichloroethylene (TCE) Concentrations

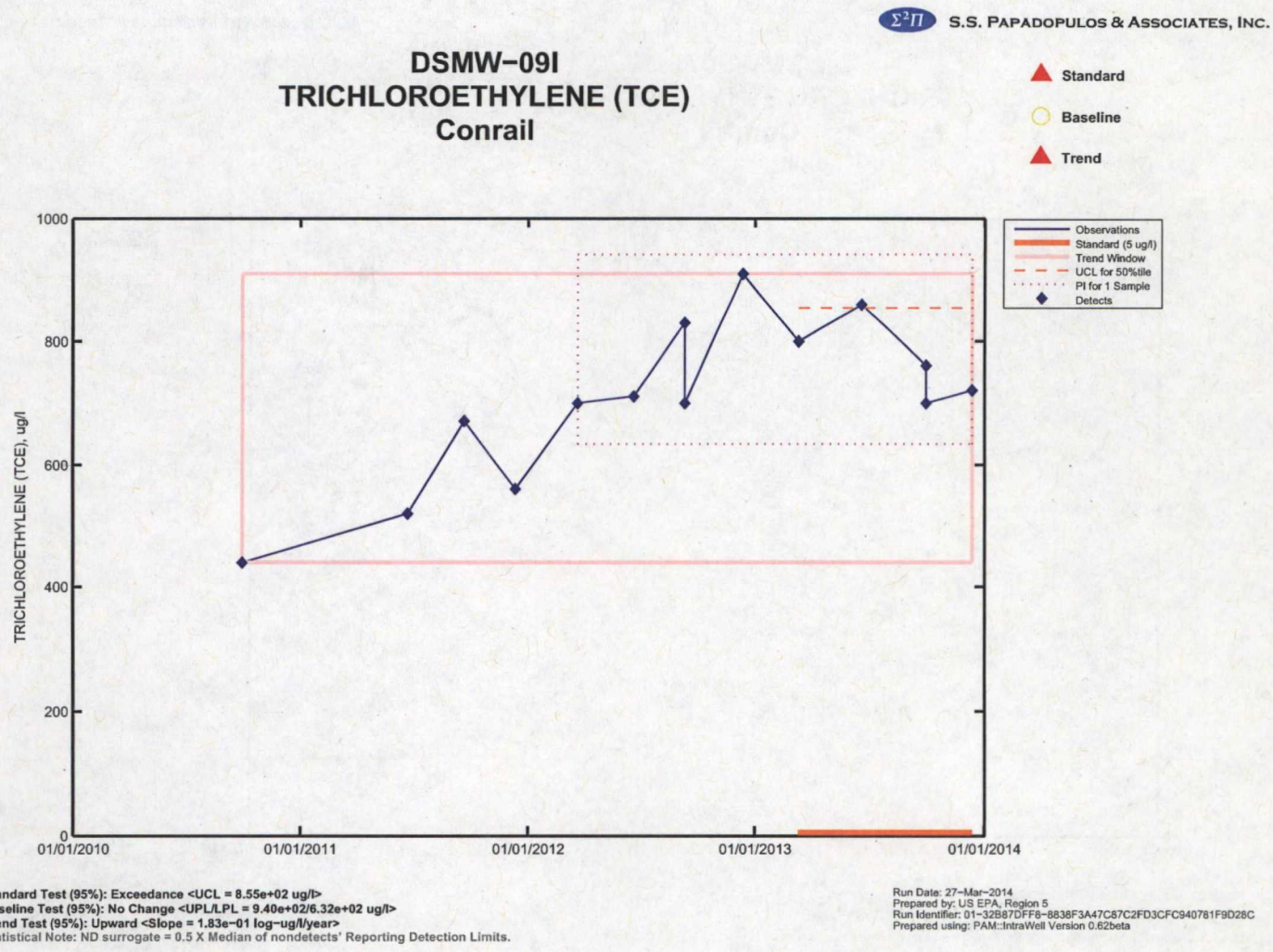


Figure 12 DSMW-09I Trichloroethylene (TCE) Concentrations

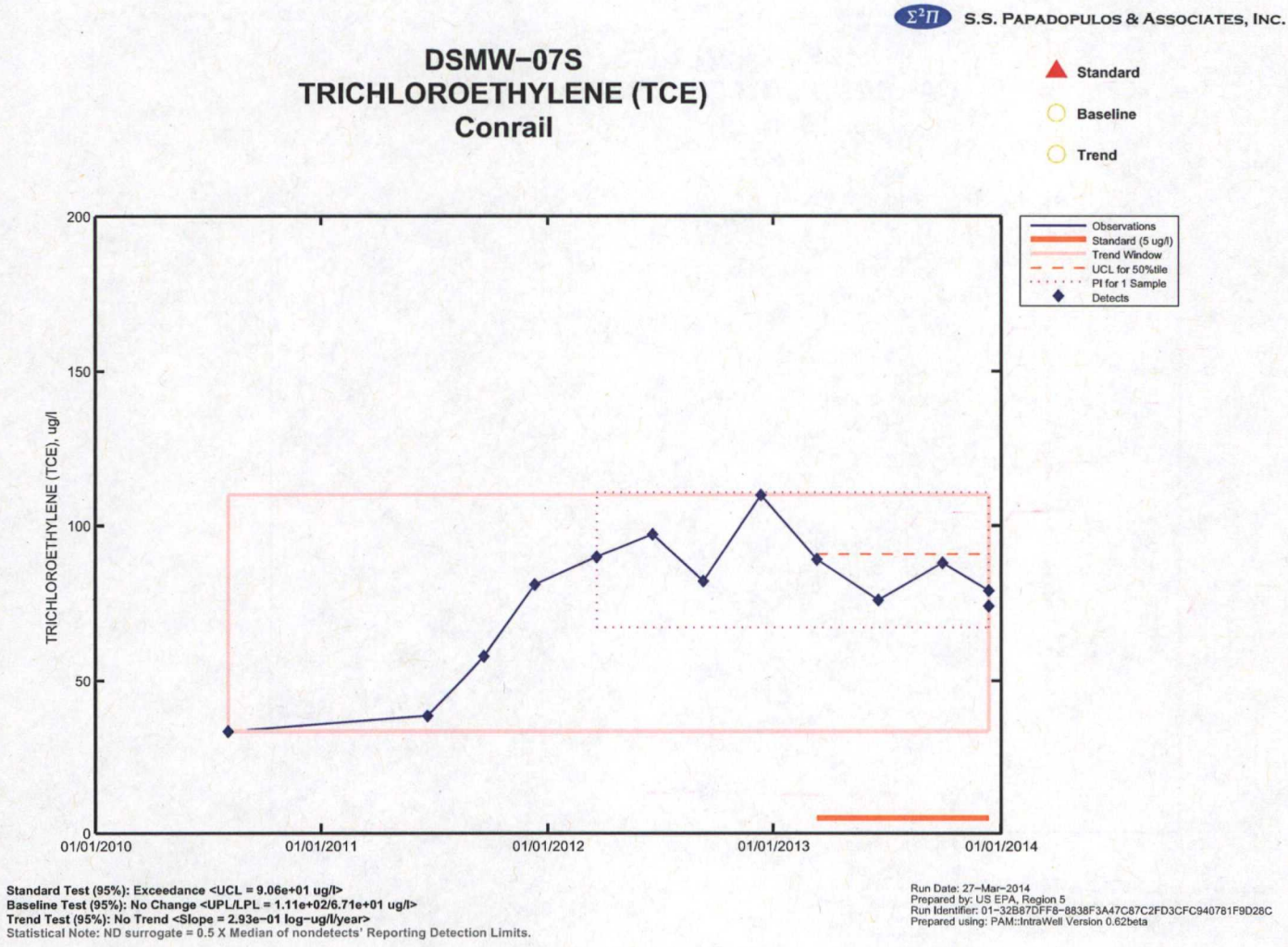


Figure 13 DSMW-07S Trichloroethylene (TCE) Concentrations

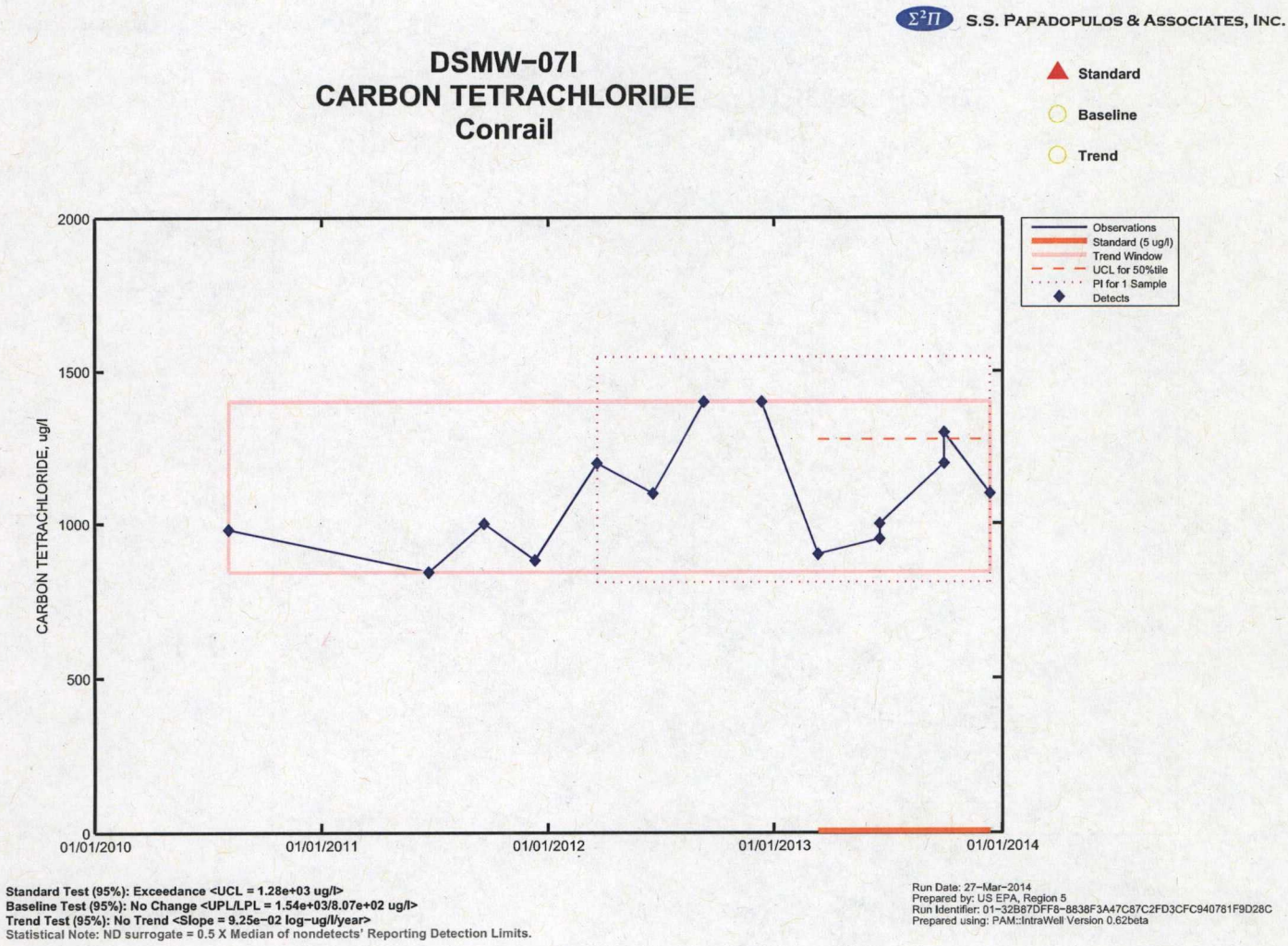


Figure 14 DSMW-07I Trichloroethylene (TCE) Concentrations

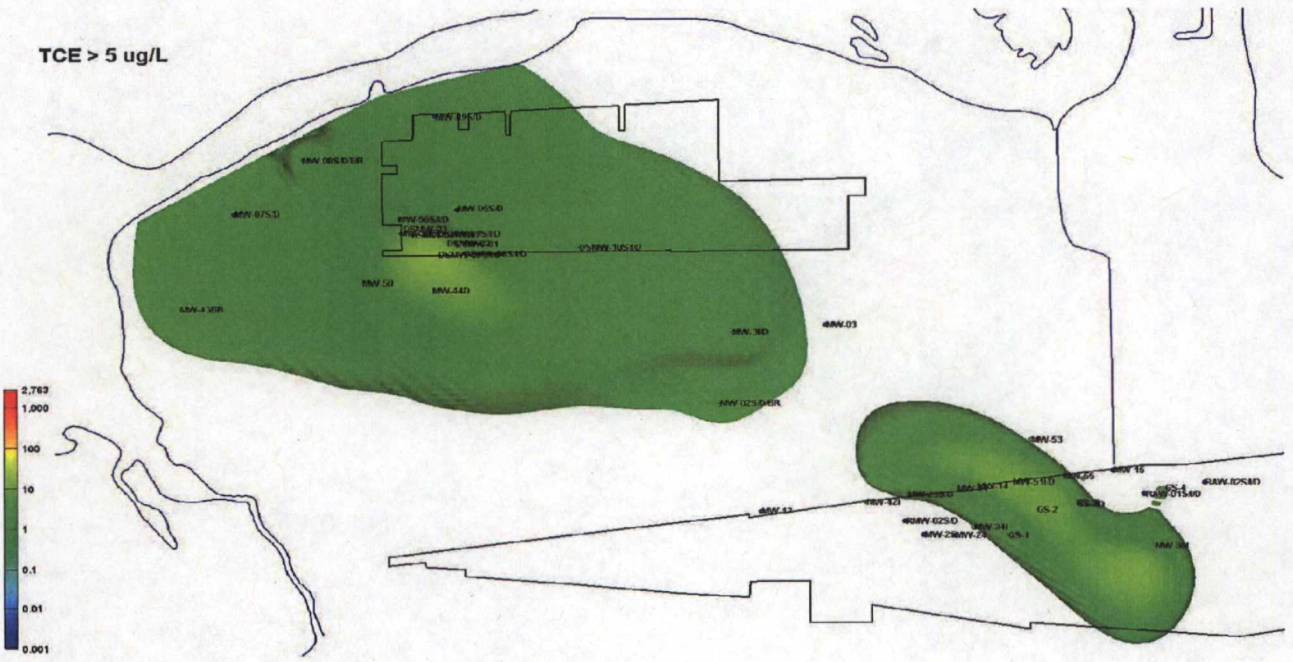


Figure 15 Target Zone, Trichloroethene (after URS)

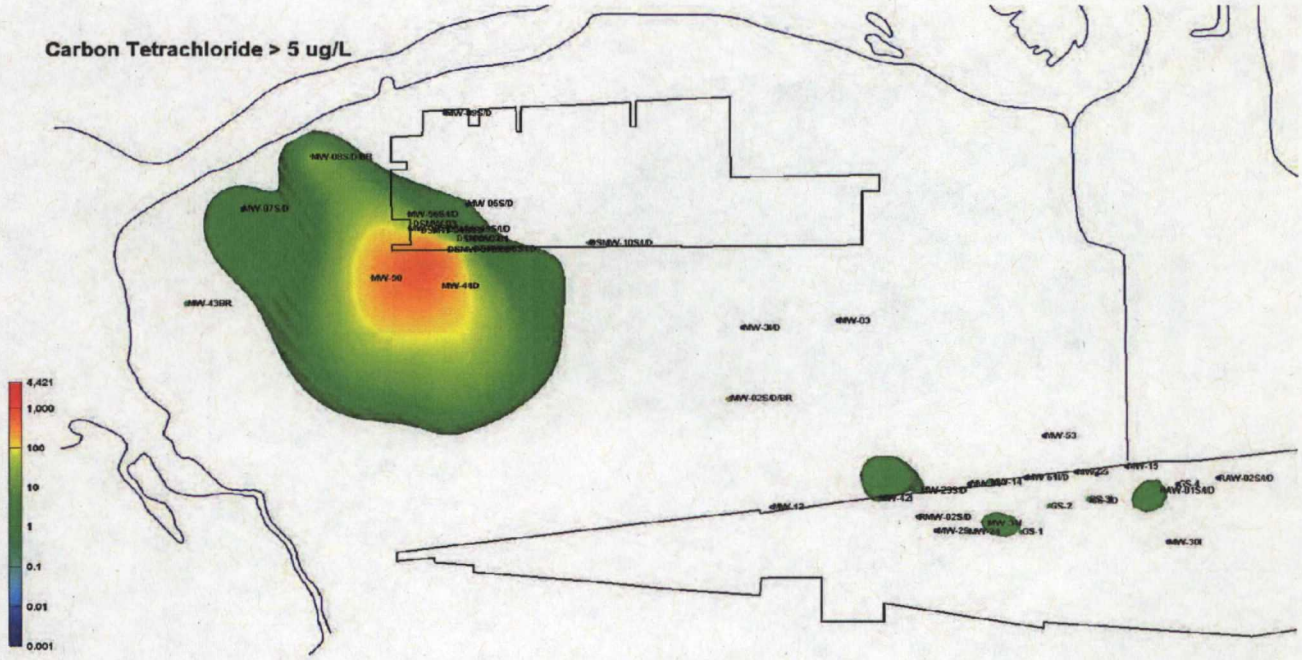


Figure 16 Target Zone, Carbon Tetrachloride, EVS (after URS)

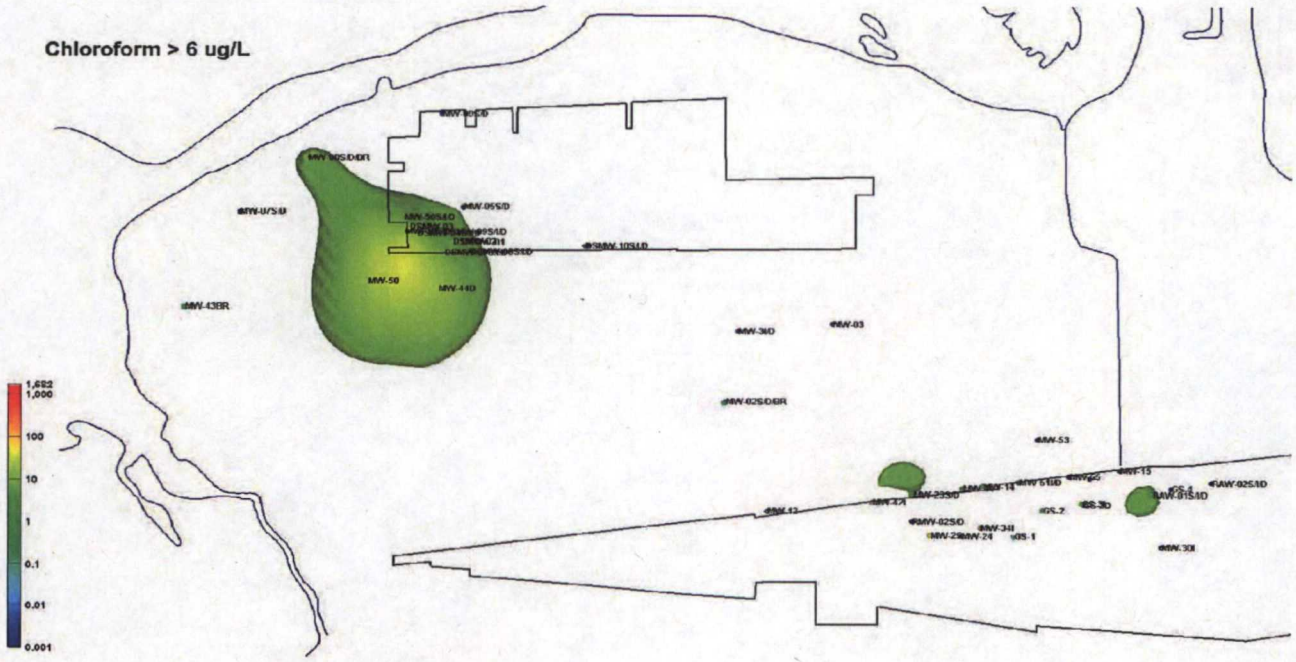
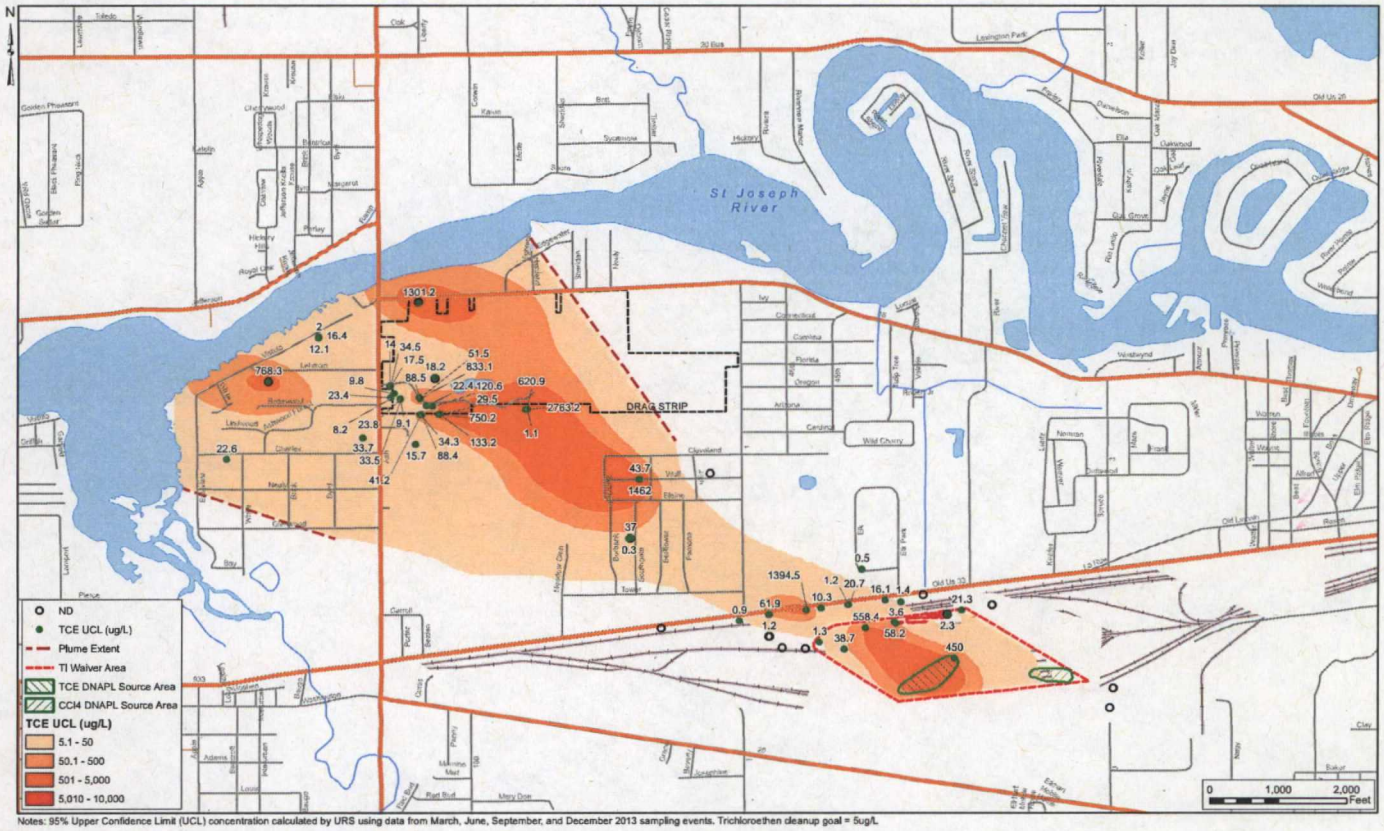
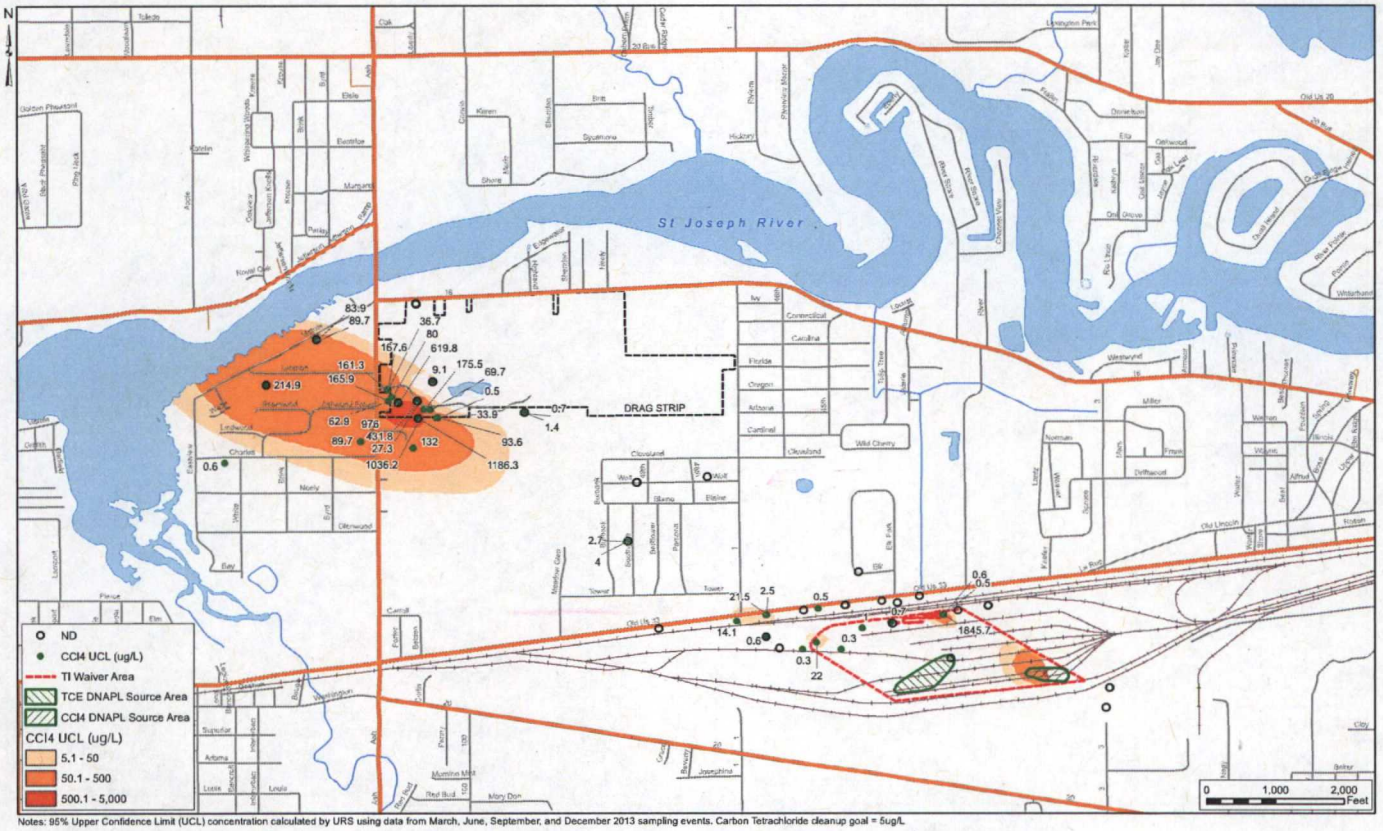


Figure 17 Target Zone, Chloroform, EVS (after URS)



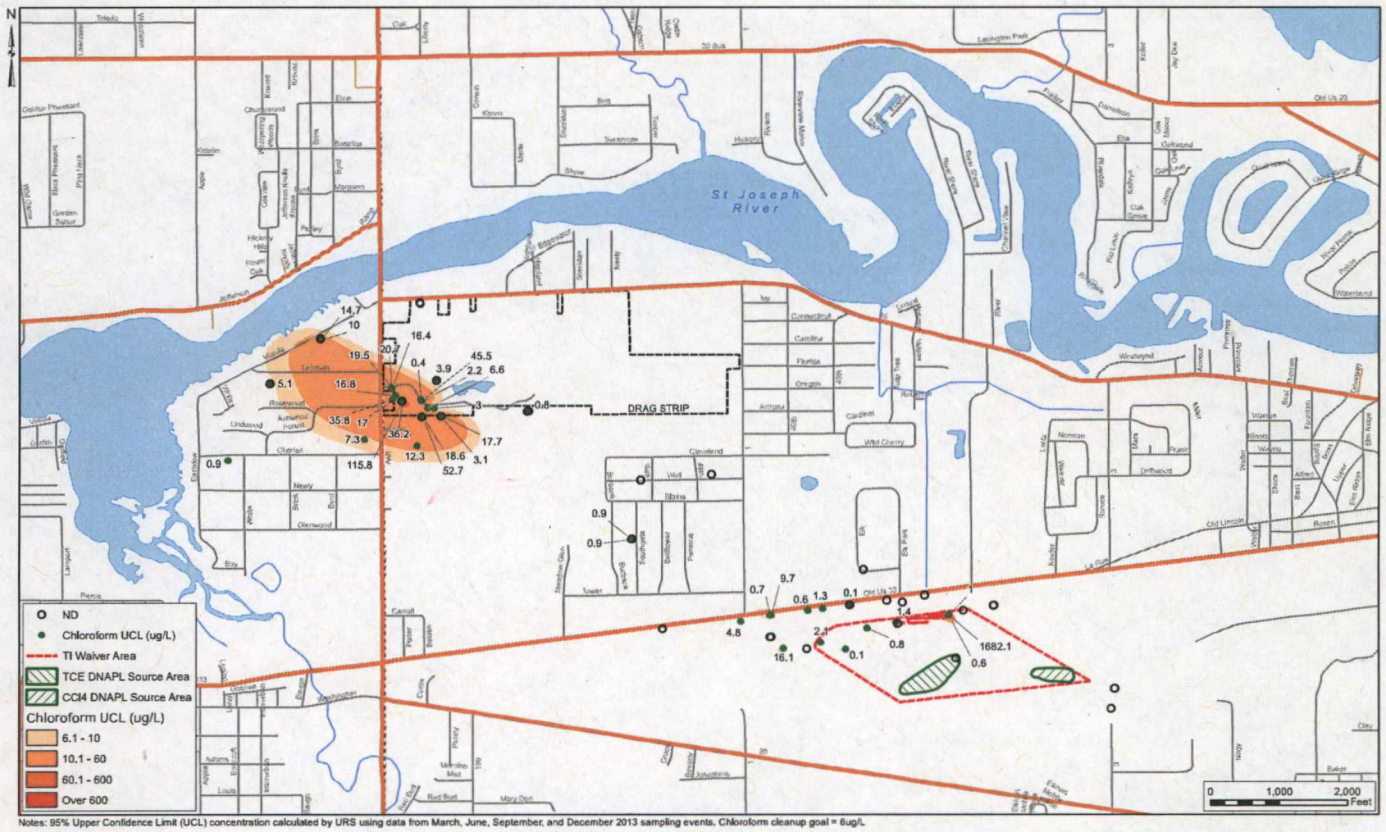
Notes: 95% Upper Confidence Limit (UCL) concentration calculated by URS using data from March, June, September, and December 2013 sampling events. Trichloroethen cleanup goal = 5ug/L

Figure 18 Target Zone, Tetrachloroethene (Quantile Kriging)



Notes: 95% Upper Confidence Limit (UCL) concentration calculated by URS using data from March, June, September, and December 2013 sampling events. Carbon Tetrachloride cleanup goal = 5ug/L

Figure 19 Target Zone, Carbon Tetrachloride (Quantile Kriging)



Notes: 95% Upper Confidence Limit (UCL) concentration calculated by URS using data from March, June, September, and December 2013 sampling events. Chloroform cleanup goal = 6ug/L

Figure 20 Target Zone, Chloroform (Quantile Kriging)

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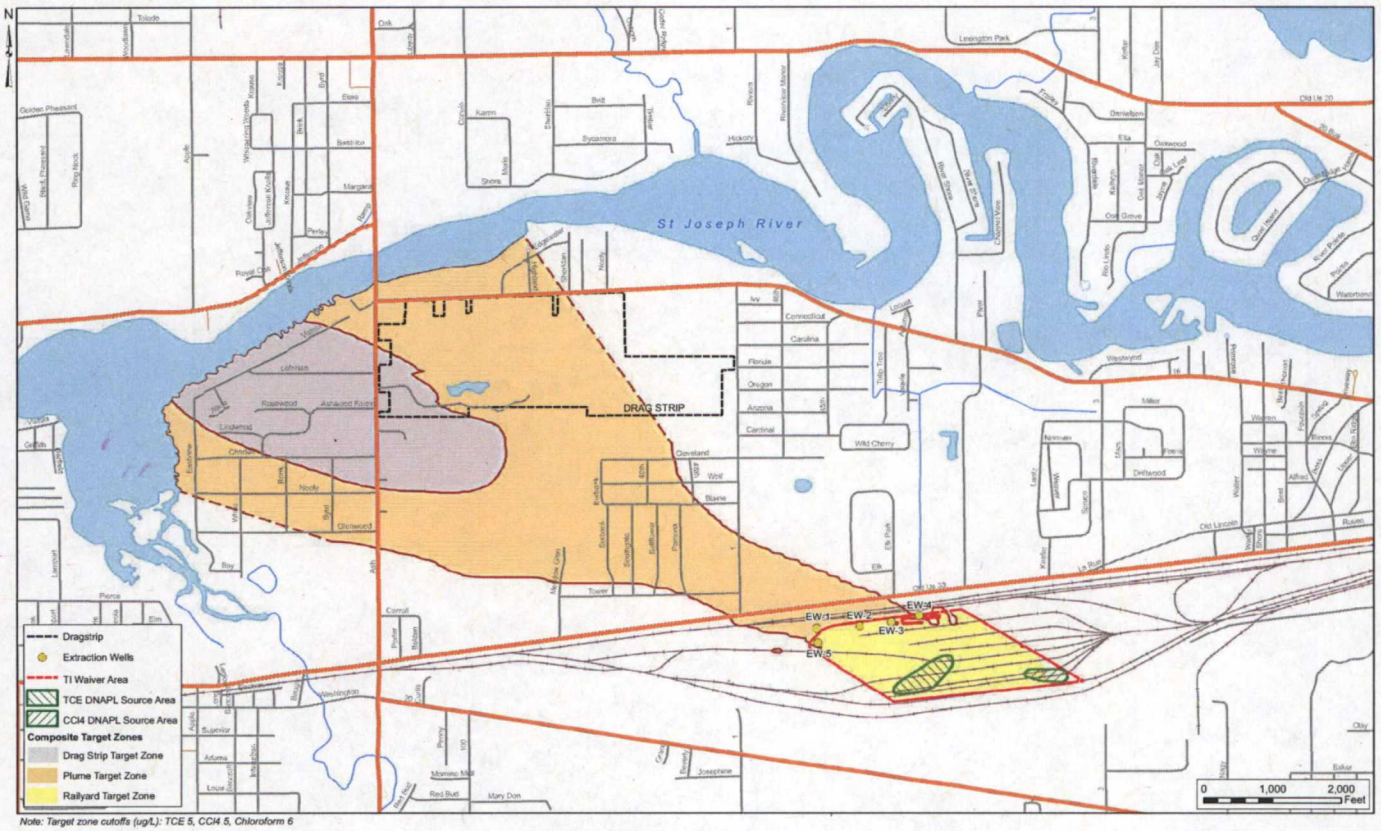

Note: Target zone cutoffs (ug/L): TCE 5, CCl4 5, Chloroform 6

Figure 21 Composite Target Zone, TCE, CCl_4, Chloroform

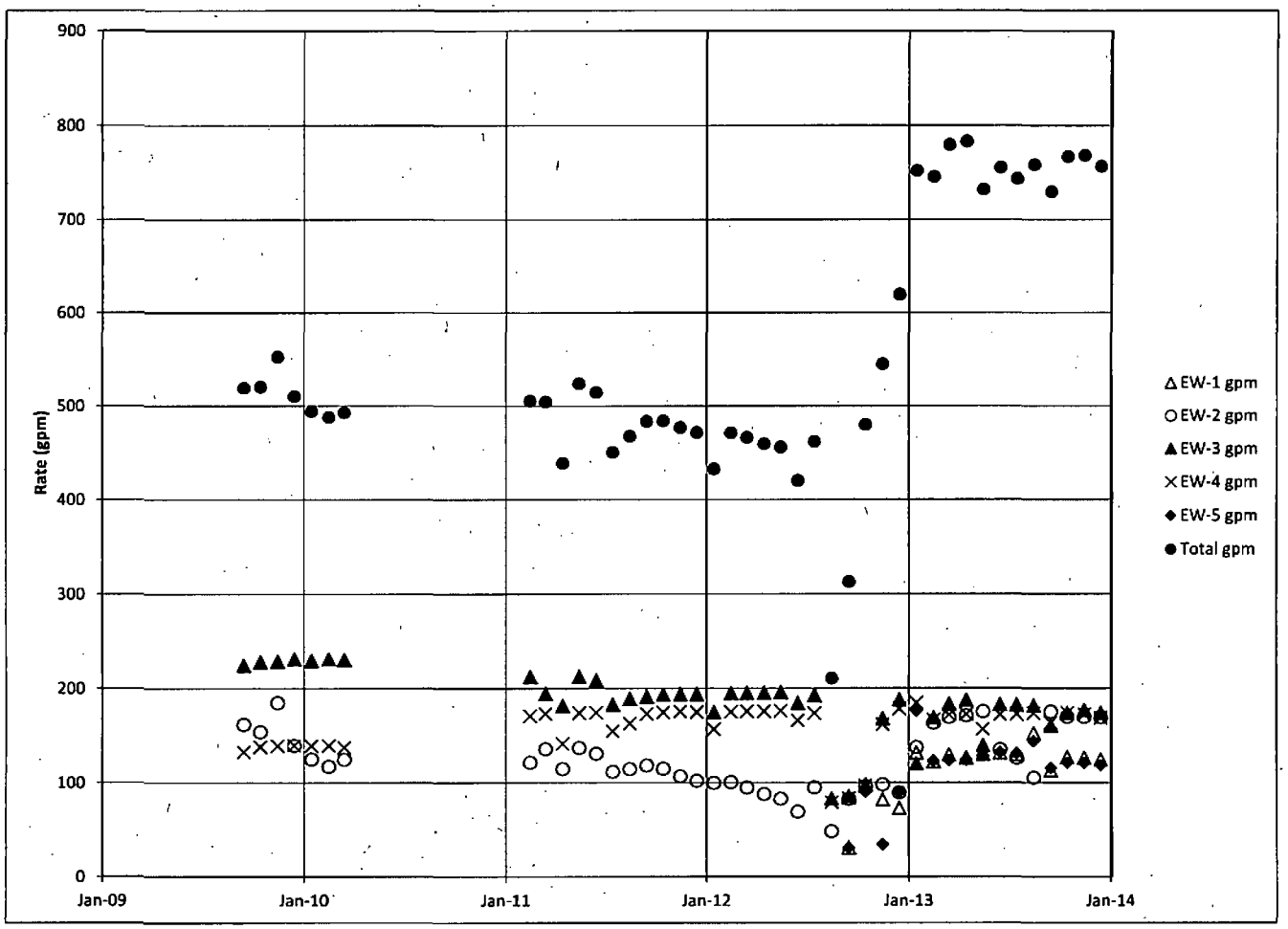

Figure 22 Rail Yard Extraction Rates

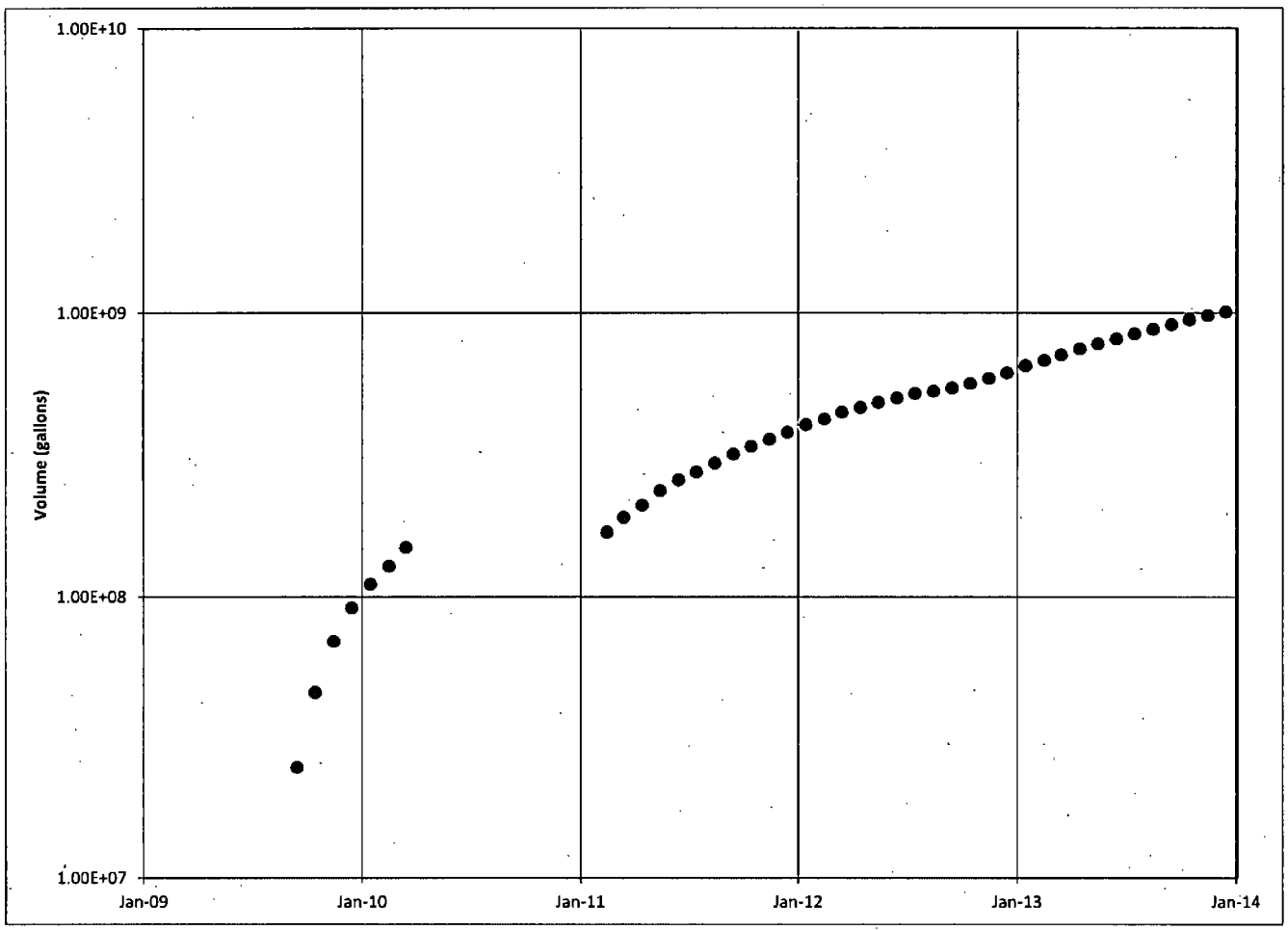

Figure 23 Rail Yard Total Volume Pumped

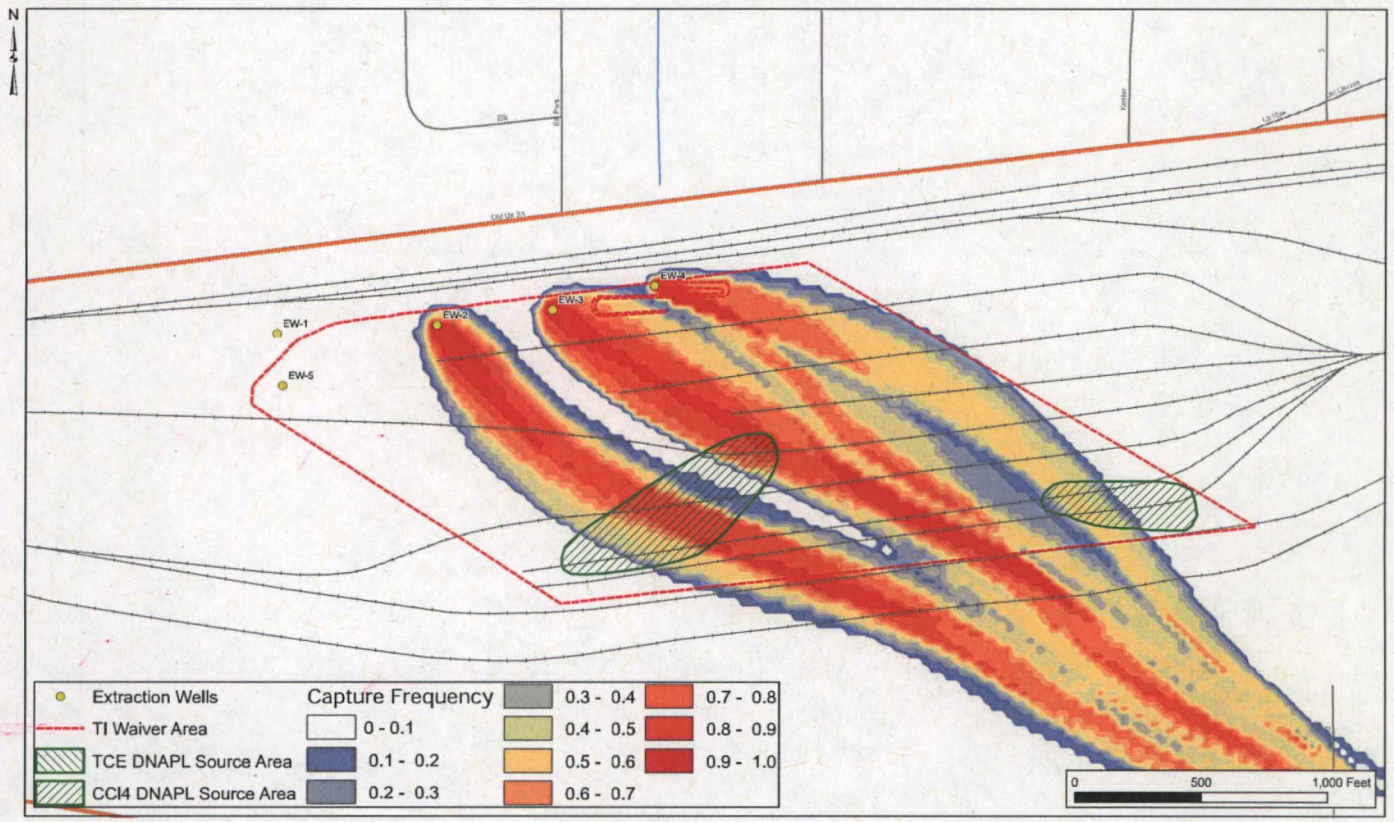

Figure 24 Capture Frequency Map, Pre-System Upgrade (Sept 2009 - April 2010)

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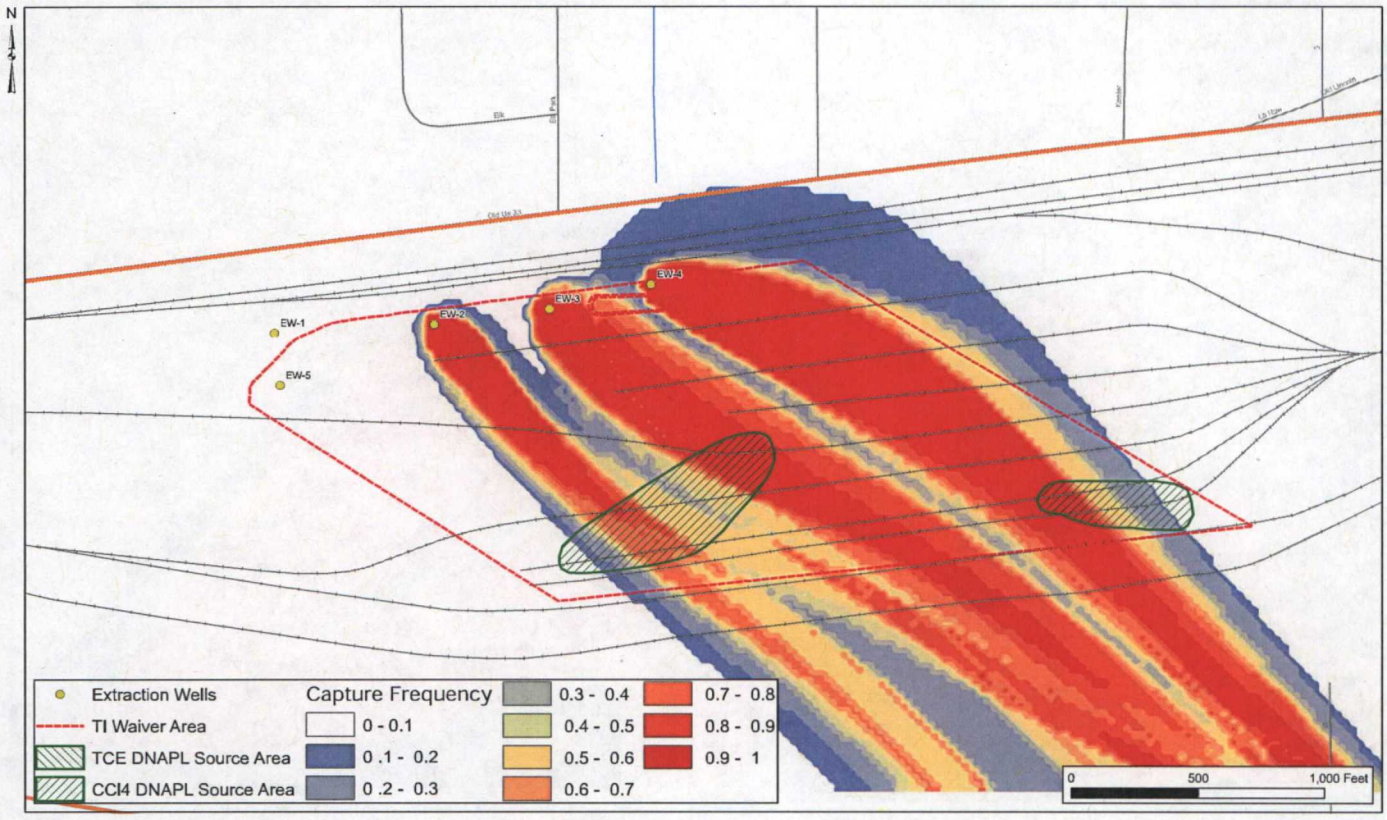

Figure 25 Capture Frequency Map, Pre-System Upgrade (Jan - July 2012)

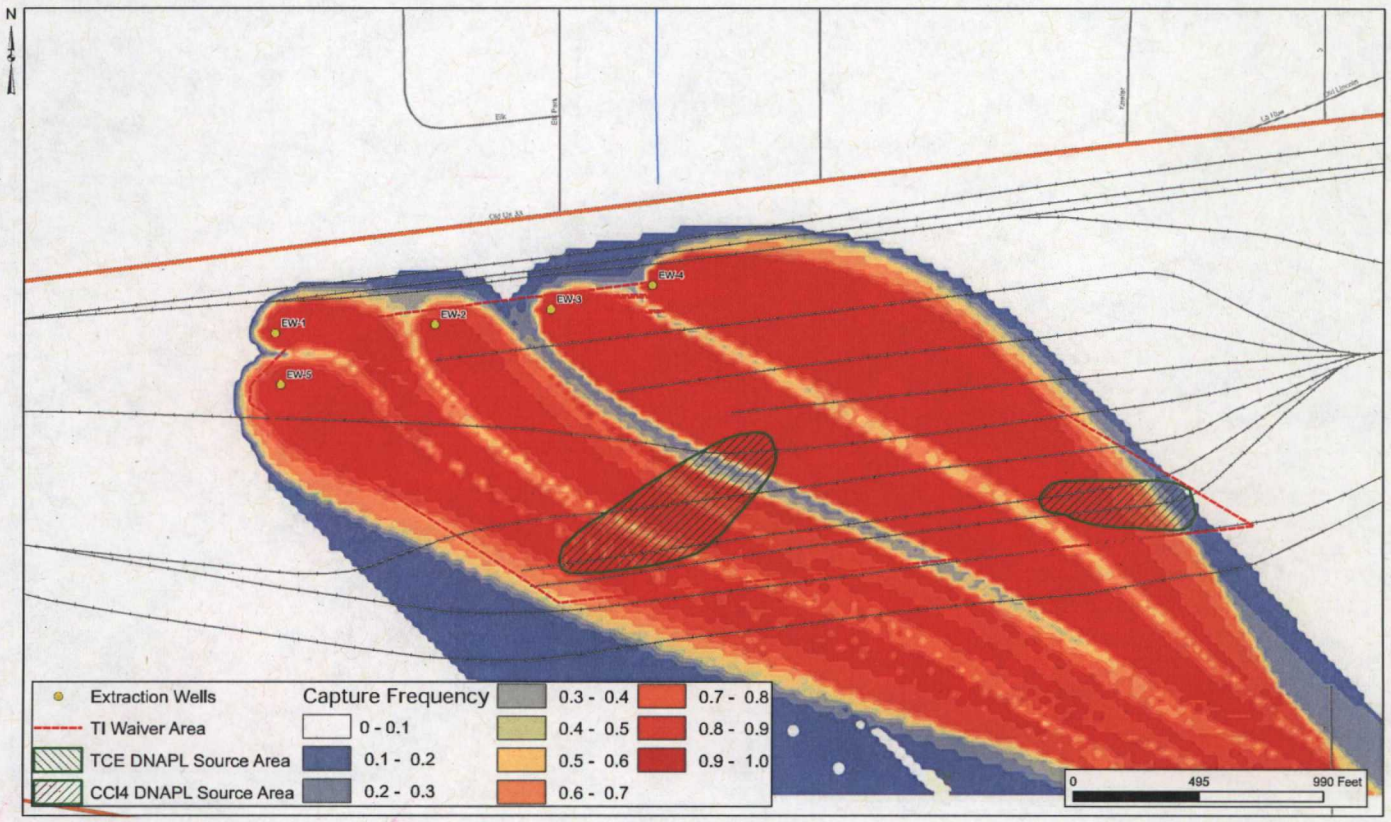

Figure 26 Capture Frequency Map, Post-System Upgrade (Feb - Dec 2013)

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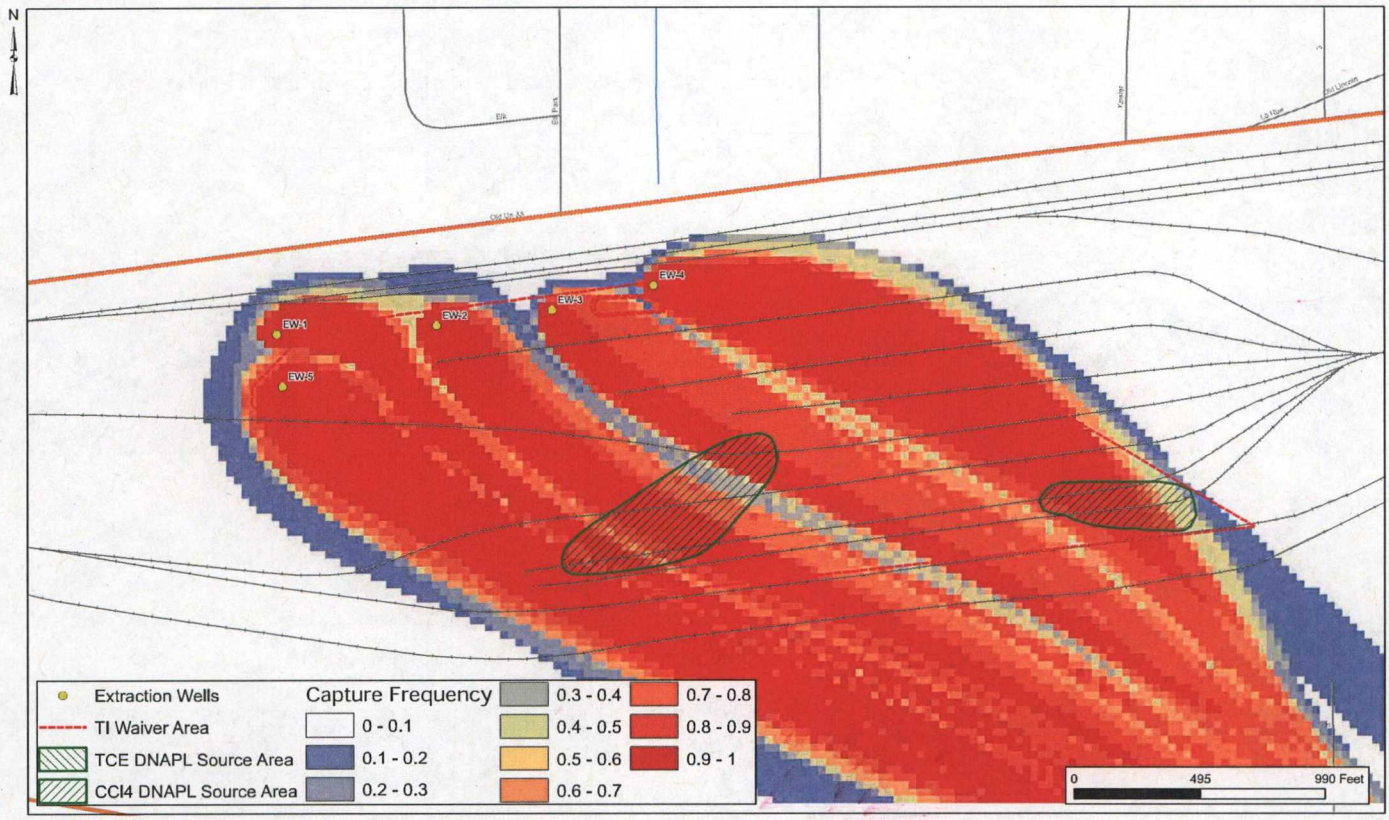


Figure 27 Capture Frequency Map, Post-System Upgrade (Feb - Dec 2013) (MEUK)

Triangle BMW-6D MW-29I MW-31I

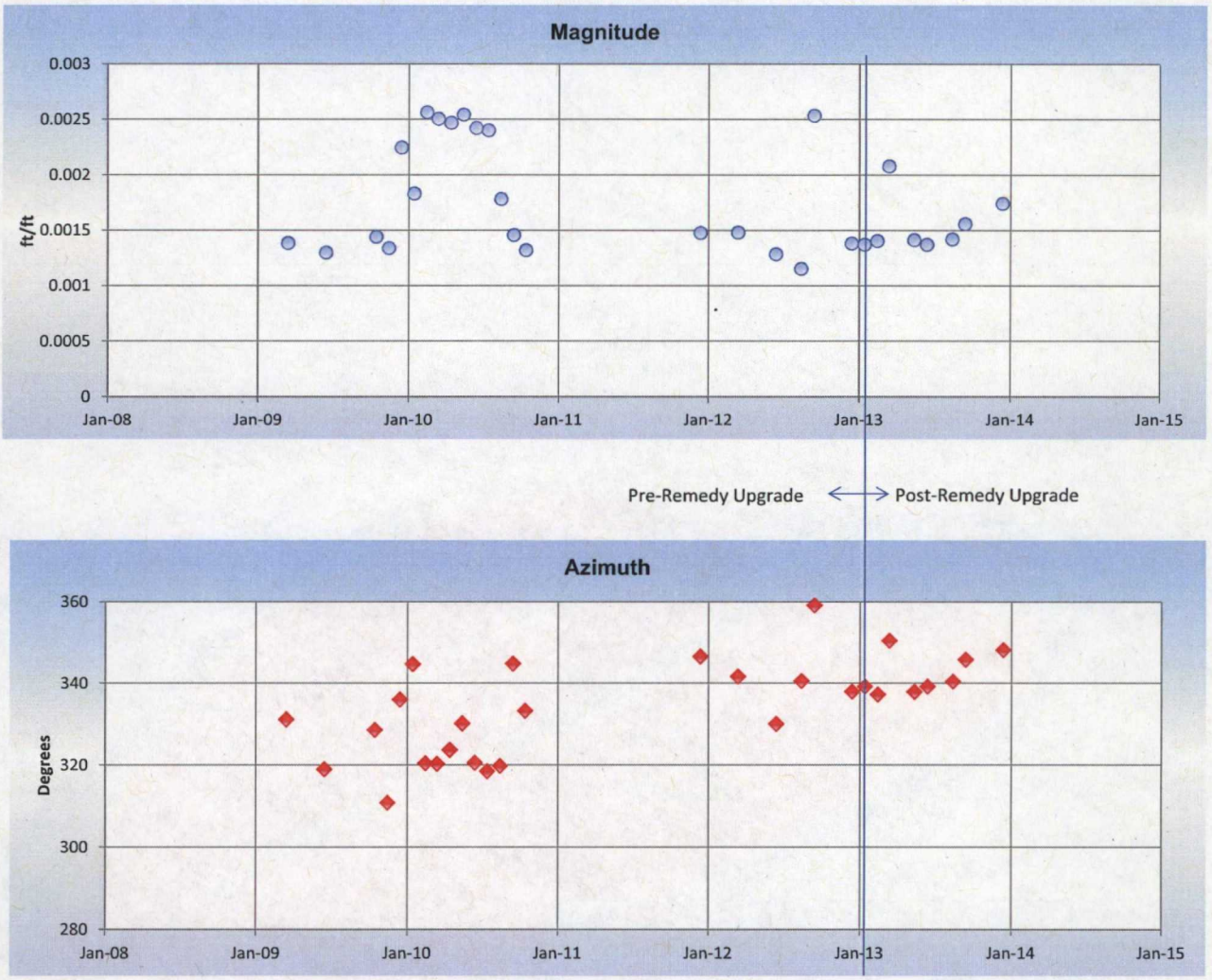


Figure 28 Three-Point Gradient Analysis Results
(Wells BWMW-6D, MW-31I, and MW-29I)

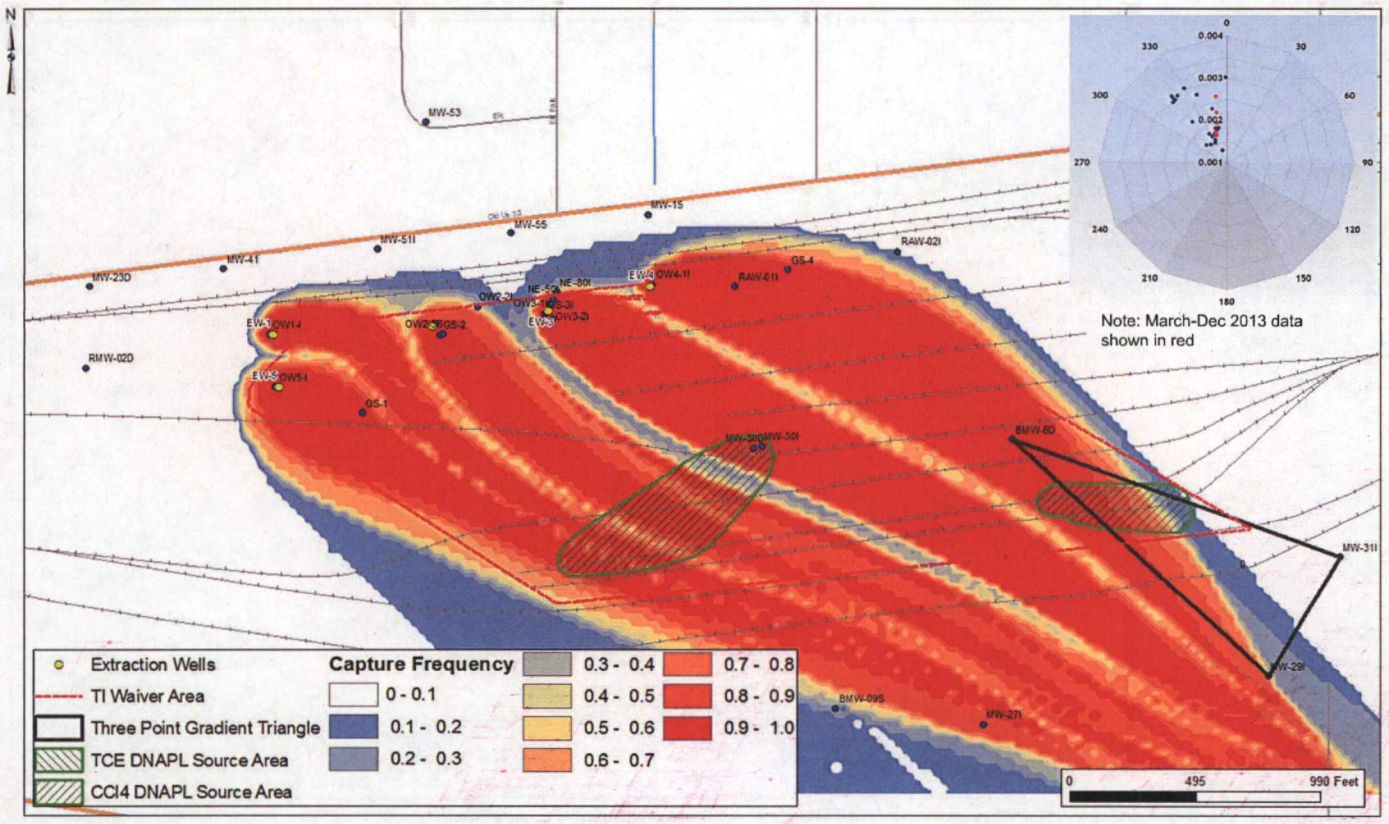


Figure 29 Capture Frequency Map, Post-System Upgrade (Feb - Dec 2013) and Three Point Gradient

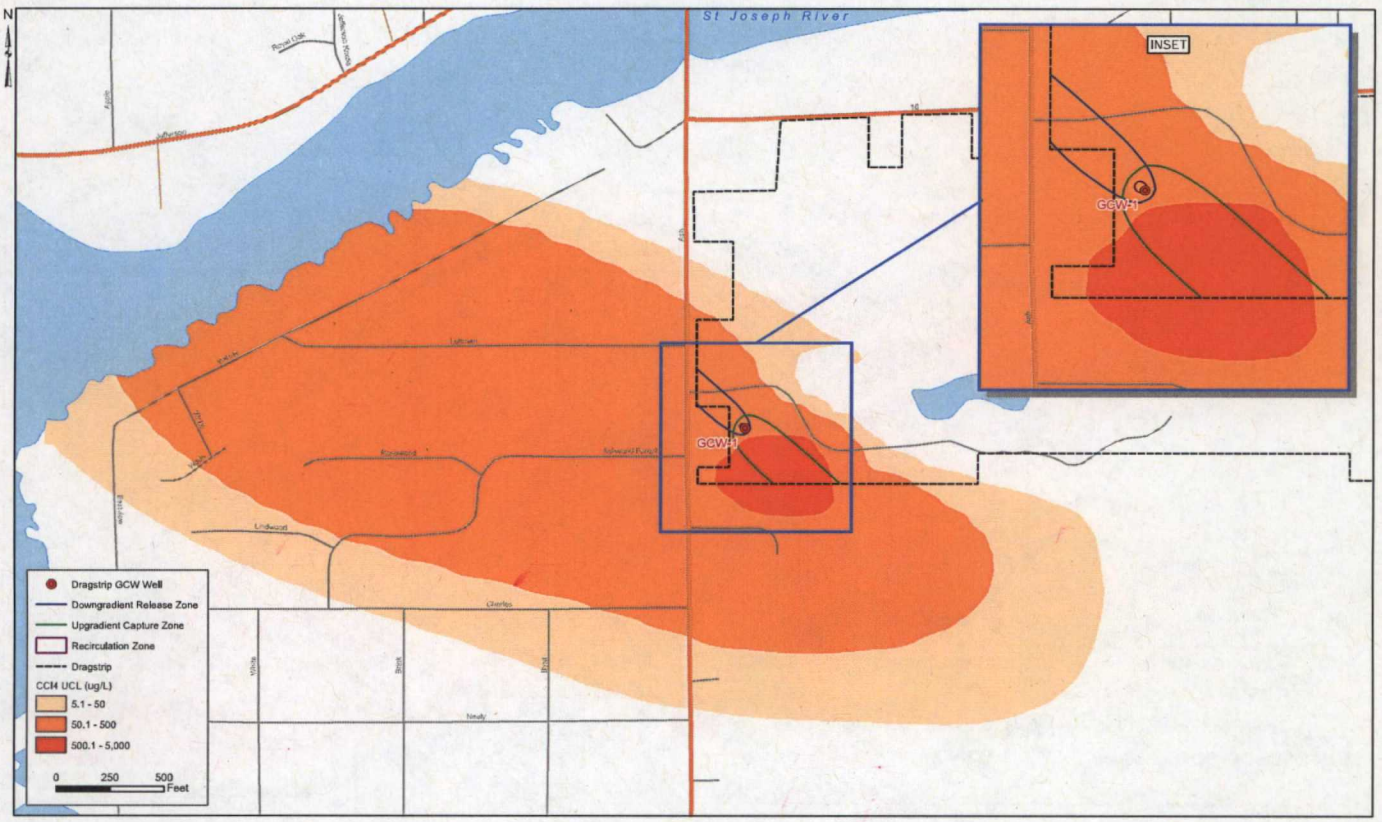


Figure 30 Extent of GCW Capture Zone with CCl_4 Target Zone

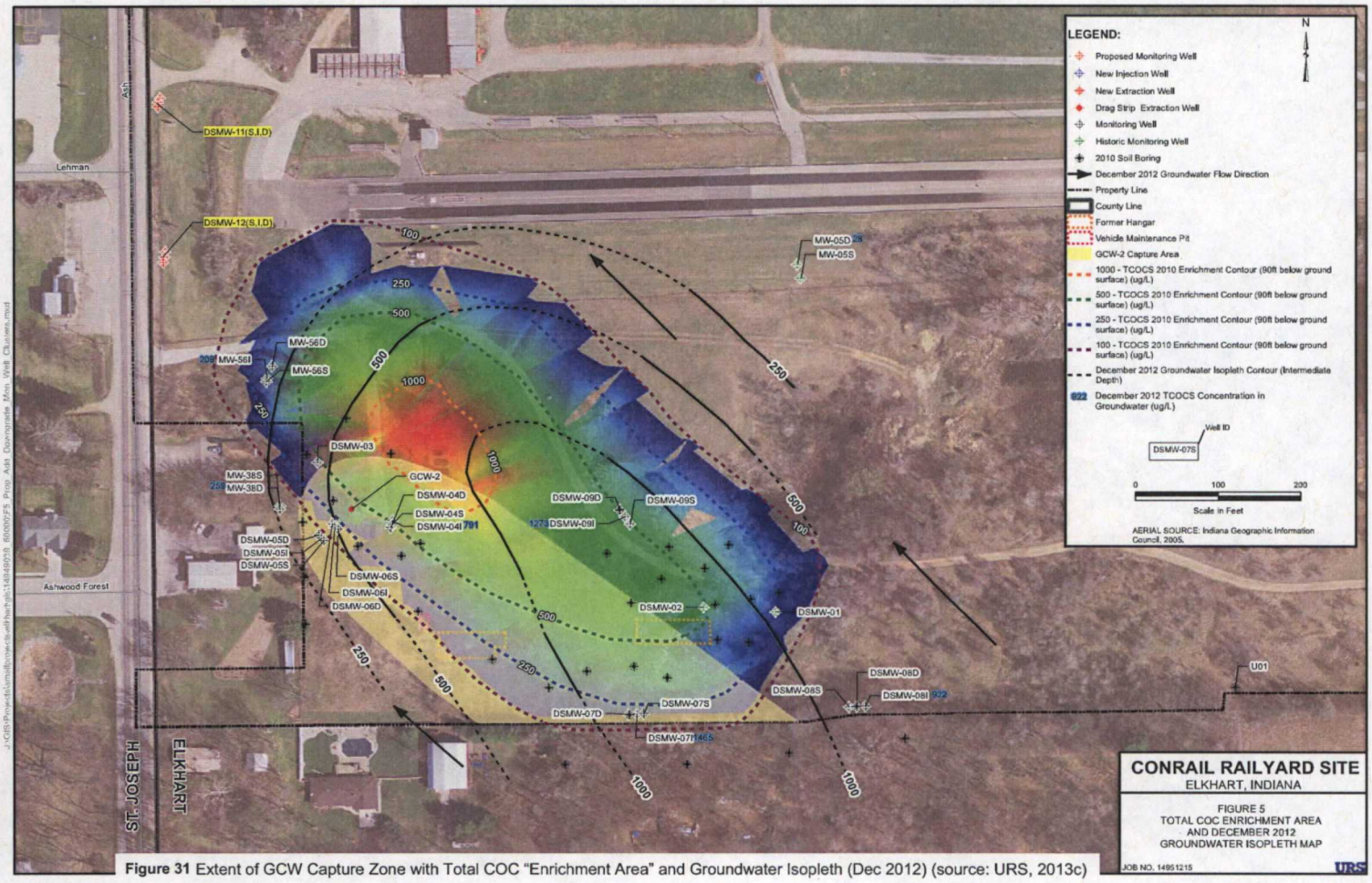


Figure 31 Extent of GCW Capture Zone with Total COC "Enrichment Area" and Groundwater Isopleth (Dec 2012) (source: URS, 2013c)

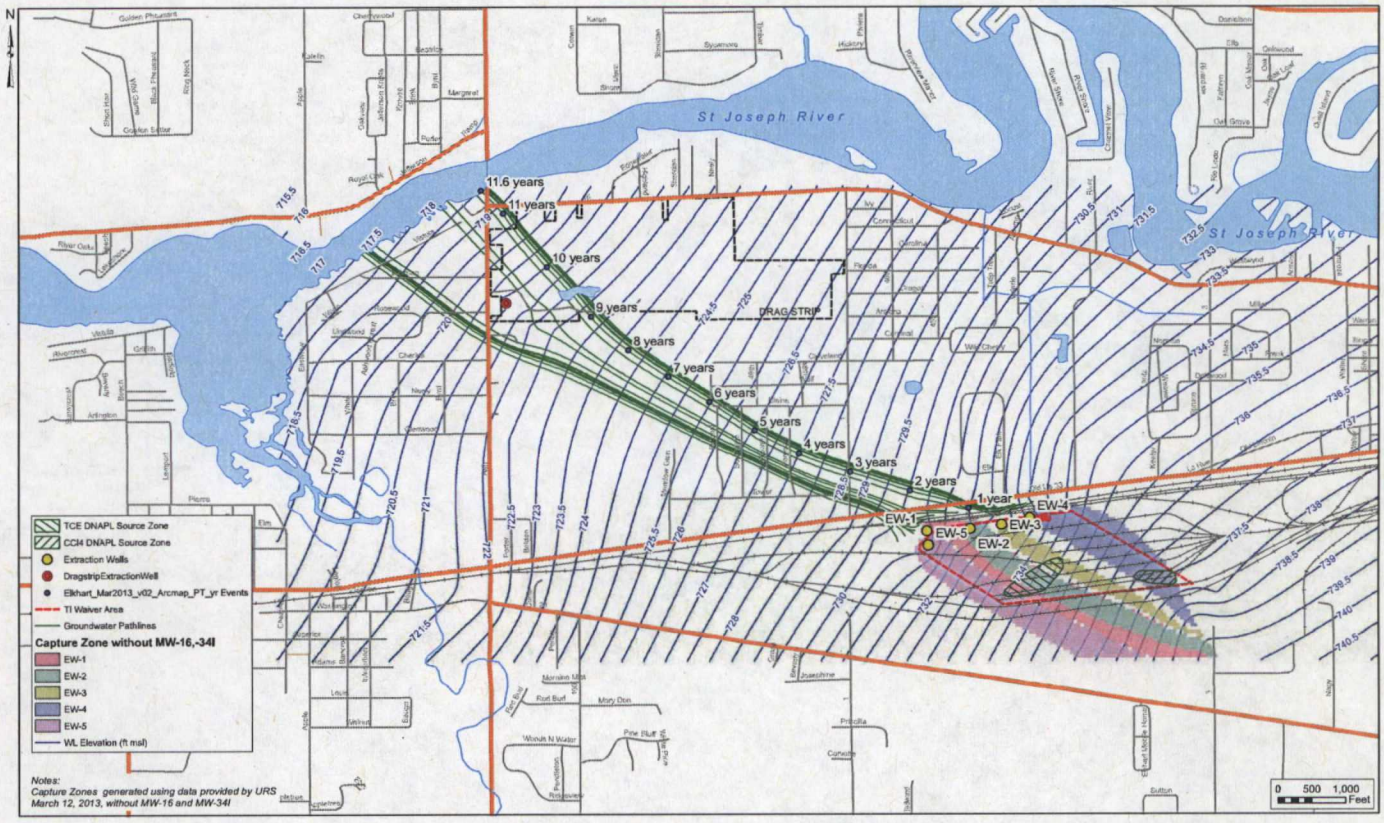


Figure 32 Time of Travel from Rail Yard to Drag Strip and St. Joseph River

TABLES

Table 1 Standard Test Results - Exceedances

Analyte	Well ID	Standard Test Result	Standard UCL (ug/L)	Standard (ug/L)	UCL /Standard	Trend Test Result
CARBON TETRACHLORIDE	DSMW-01	Exceedance	72.6	5	15	Downward
CARBON TETRACHLORIDE	DSMW-02	Exceedance	186.4	5	37	No Trend
CARBON TETRACHLORIDE	DSMW-03	Exceedance	88.0	5	18	Downward
CARBON TETRACHLORIDE	DSMW-04I	Exceedance	1071.0	5	214	Downward
CARBON TETRACHLORIDE	DSMW-04S	Exceedance	645.8	5	129	No Trend
CARBON TETRACHLORIDE	DSMW-07I	Exceedance	1276.0	5	255	No Trend
CARBON TETRACHLORIDE	DSMW-07S	Exceedance	1092.4	5	218	No Trend
CARBON TETRACHLORIDE	DSMW-08I	Exceedance	99.7	5	20	No Trend
CARBON TETRACHLORIDE	DSMW-08S	Exceedance	37.0	5	7	No Trend
CARBON TETRACHLORIDE	DSMW-09I	Exceedance	473.1	5	95	No Trend
CARBON TETRACHLORIDE	DSMW-09S	Exceedance	29.0	5	6	No Trend
CARBON TETRACHLORIDE	EW-4	Exceedance	277.2	5	55	No Trend
CARBON TETRACHLORIDE	MW-05D	Exceedance	9.5	5	2	Downward
CARBON TETRACHLORIDE	MW-07D	Exceedance	228.8	5	46	Upward
CARBON TETRACHLORIDE	MW-08D	Exceedance	86.4	5	17	Downward
CARBON TETRACHLORIDE	MW-08S	Exceedance	99.9	5	20	Downward
CARBON TETRACHLORIDE	MW-23D	Exceedance	24.8	5	5	No Trend⊥
CARBON TETRACHLORIDE	MW-34I	Exceedance	23.5	5	5	No Trend⊥
CARBON TETRACHLORIDE	MW-38D	Exceedance	175.4	5	35	Downward
CARBON TETRACHLORIDE	MW-38S	Exceedance	69.5	5	14	Downward
CARBON TETRACHLORIDE	MW-42I	Exceedance	16.0	5	3	Downward
CARBON TETRACHLORIDE	MW-44D	Exceedance	137.6	5	28	Downward
CARBON TETRACHLORIDE	MW-50	Exceedance	95.9	5	19	No Trend
CARBON TETRACHLORIDE	MW-56D	Exceedance	39.8	5	8	Downward
CARBON TETRACHLORIDE	MW-56I	Exceedance	179.8	5	36	Downward
CARBON TETRACHLORIDE	MW-56S	Exceedance	177.5	5	35	Downward
CARBON TETRACHLORIDE	RAW-01I	Exceedance	1969.2	5	394	Downward
CHLOROFORM	DSMW-02	Exceedance	7.0	6	1	No Trend
CHLOROFORM	DSMW-03	Exceedance	17.8	6	3	Downward
CHLOROFORM	DSMW-04I	Exceedance	121.3	6	20	No Trend
CHLOROFORM	DSMW-04S	Exceedance	36.7	6	6	No Trend
CHLOROFORM	DSMW-07I	Exceedance	58.4	6	10	No Trend
CHLOROFORM	DSMW-07S	Exceedance	20.0	6	3	No Trend
CHLOROFORM	DSMW-08I	Exceedance	18.0	6	3	No Trend
CHLOROFORM	DSMW-09I	Exceedance	47.4	6	8	No Trend
CHLOROFORM	EW-4	Exceedance	210.2	6	35	No Trend
CHLOROFORM	MW-08D	Exceedance	14.8	6	2	Downward
CHLOROFORM	MW-08S	Exceedance	9.8	6	2	Downward
CHLOROFORM	MW-23D	Exceedance	9.9	6	2	No Trend⊥
CHLOROFORM	MW-25	Exceedance	19.0	6	3	No Trend⊥
CHLOROFORM	MW-38D	Exceedance	41.1	6	7	Downward
CHLOROFORM	MW-38S	Exceedance	17.5	6	3	No Trend
CHLOROFORM	MW-44D	Exceedance	12.7	6	2	No Trend
CHLOROFORM	MW-50	Exceedance	8.6	6	1	No Trend
CHLOROFORM	MW-56D	Exceedance	21.2	6	4	Downward
CHLOROFORM	MW-56I	Exceedance	21.9	6	4	Downward
CHLOROFORM	MW-56S	Exceedance	17.4	6	3	Downward
CHLOROFORM	RAW-01I	Exceedance	1913.0	6	319	Downward
TRICHLOROETHYLENE (TCE)	DSMW-01	Exceedance	123.8	5	25	No Trend
TRICHLOROETHYLENE (TCE)	DSMW-02	Exceedance	24.3	5	5	No Trend
TRICHLOROETHYLENE (TCE)	DSMW-03	Exceedance	10.8	5	2	Downward
TRICHLOROETHYLENE (TCE)	DSMW-04D	Exceedance	9.4	5	2	Downward
TRICHLOROETHYLENE (TCE)	DSMW-04I	Exceedance	25.8	5	5	No Trend
TRICHLOROETHYLENE (TCE)	DSMW-04S	Exceedance	33.7	5	7	No Trend
TRICHLOROETHYLENE (TCE)	DSMW-07D	Exceedance	43.3	5	9	Downward
TRICHLOROETHYLENE (TCE)	DSMW-07I	Exceedance	37.5	5	7	Upward
TRICHLOROETHYLENE (TCE)	DSMW-07S	Exceedance	90.6	5	18	No Trend
TRICHLOROETHYLENE (TCE)	DSMW-08D	Exceedance	137.3	5	27	Downward
TRICHLOROETHYLENE (TCE)	DSMW-08I	Exceedance	760.3	5	152	No Trend
TRICHLOROETHYLENE (TCE)	DSMW-08S	Exceedance	36.6	5	7	No Trend
TRICHLOROETHYLENE (TCE)	DSMW-09D	Exceedance	56.1	5	11	Downward

Table 1 Standard Test Results - Exceedances

Analyte	Well ID	Standard Test Result	Standard UCL (ug/L)	Standard (ug/L)	UCL /Standard	Trend Test Result
TRICHLOROETHYLENE (TCE)	DSMW-09I	Exceedance	855.3	5	171	Upward
TRICHLOROETHYLENE (TCE)	DSMW-09S	Exceedance	92.9	5	19	No Trend
TRICHLOROETHYLENE (TCE)	DSMW-10D	Exceedance	646.4	5	129	No Trend
TRICHLOROETHYLENE (TCE)	DSMW-10I	Exceedance	2835.9	5	567	No Trend
TRICHLOROETHYLENE (TCE)	EW-2	Exceedance	228.6	5	46	Downward
TRICHLOROETHYLENE (TCE)	EW-3	Exceedance	190.2	5	38	No Trend
TRICHLOROETHYLENE (TCE)	GS-1	Exceedance	39.6	5	8	Downward
TRICHLOROETHYLENE (TCE)	GS-2	Exceedance	616.8	5	123	Downward
TRICHLOROETHYLENE (TCE)	GS-3I	Exceedance	61.1	5	12	Downward
TRICHLOROETHYLENE (TCE)	GS-4	Exceedance	23.9	5	5	Upward
TRICHLOROETHYLENE (TCE)	MW-02BR	Exceedance	37.5	5	8	No Trend
TRICHLOROETHYLENE (TCE)	MW-05D	Exceedance	18.8	5	4	Upward
TRICHLOROETHYLENE (TCE)	MW-07D	Exceedance	803.8	5	161	Downward
TRICHLOROETHYLENE (TCE)	MW-08D	Exceedance	12.4	5	2	Downward
TRICHLOROETHYLENE (TCE)	MW-08S	Exceedance	26.7	5	5	Downward
TRICHLOROETHYLENE (TCE)	MW-09D	Exceedance	1317.9	5	264	Downward
TRICHLOROETHYLENE (TCE)	MW-14	Exceedance	11.4	5	2	No Trend
TRICHLOROETHYLENE (TCE)	MW-23D	Exceedance	67.1	5	13	No Trend
TRICHLOROETHYLENE (TCE)	MW-38D	Exceedance	25.6	5	5	No Trend
TRICHLOROETHYLENE (TCE)	MW-38S	Exceedance	8.7	5	2	Downward
TRICHLOROETHYLENE (TCE)	MW-3D	Exceedance	53.6	5	11	Downward
TRICHLOROETHYLENE (TCE)	MW-3I	Exceedance	1786.8	5	357	No Trend
TRICHLOROETHYLENE (TCE)	MW-4I	Exceedance	1590.5	5	318	Downward
TRICHLOROETHYLENE (TCE)	MW-43BR	Exceedance	25.6	5	5	Downward
TRICHLOROETHYLENE (TCE)	MW-44D	Exceedance	16.3	5	3	No Trend
TRICHLOROETHYLENE (TCE)	MW-50	Exceedance	37.0	5	7	No Trend
TRICHLOROETHYLENE (TCE)	MW-51I	Exceedance	22.0	5	4	Downward
TRICHLOROETHYLENE (TCE)	MW-55	Exceedance	16.4	5	3	No Trend
TRICHLOROETHYLENE (TCE)	MW-56D	Exceedance	37.6	5	8	Downward
TRICHLOROETHYLENE (TCE)	MW-56I	Exceedance	18.2	5	4	Downward
TRICHLOROETHYLENE (TCE)	MW-56S	Exceedance	14.8	5	3	Downward
CIS-1,2-DICHLOROETHYLENE	MW-3D	Exceedance	128.9	70	2	No Trend
TETRACHLOROETHYLENE(PCE)	DSMW-07S	Exceedance⊥	10.0	5	2	No Trend⊥

Notes:
1-UCL concentrations calculated with PAM using data from 4 most recent samples collected between January 1, 2012 and December 31, 2013 at a confidence level of 95%.
2-Trend Test Results reported using a 95% confidence level.
3- When used, ND surrogate = 0.5 X Median of Nondetects' Reporting Detection Limits

Table 2 Trend Test Results

Analyte	Well ID	Units	Trend Test Result	Slope Estimate	Mann-Kendall Confidence
CARBON TETRACHLORIDE	DSMW-01	ug/l	**Downward**	**-0.08113£**	≥95
CARBON TETRACHLORIDE	DSMW-03	ug/l	**Downward**	**-0.19012£**	≥95
CARBON TETRACHLORIDE	DSMW-04	ug/l	**Downward**	**-0.11379£**	≥95
CARBON TETRACHLORIDE	DSMW-04I	ug/l	**Downward**	**-0.23371£**	≥95
CARBON TETRACHLORIDE	DSMW-07I	ug/l	No Trend	0.09247£	93
CARBON TETRACHLORIDE	DSMW-08I	ug/l	No Trend	-0.04023£	91
CARBON TETRACHLORIDE	EW-3	ug/l	No Trend⊥	-0.08848£	≥95Ø⊥
CARBON TETRACHLORIDE	MW-02D	ug/l	**Downward**	**-0.13083£**	≥95
CARBON TETRACHLORIDE	MW-02S	ug/l	**Downward**	**-0.14919£**	≥95
CARBON TETRACHLORIDE	MW-05D	ug/l	**Downward**	**-0.05341£**	≥95
CARBON TETRACHLORIDE	MW-07D	ug/l	**Upward**	**0.05112£**	≥95
CARBON TETRACHLORIDE	MW-08BR	ug/l	**Downward⊥**	**-0.12128£**	≥95⊥
CARBON TETRACHLORIDE	MW-08D	ug/l	**Downward**	**-0.09964£**	≥95
CARBON TETRACHLORIDE	MW-08S	ug/l	**Downward**	**-0.11682£**	≥95
CARBON TETRACHLORIDE	MW-14	ug/l	**Downward**	**-0.04259£**	≥95
CARBON TETRACHLORIDE	MW-24	ug/l	**Downward**	**-0.19181£**	≥95
CARBON TETRACHLORIDE	MW-37S	ug/l	**Downward**	**-0.08767£**	≥95
CARBON TETRACHLORIDE	MW-38D	ug/l	**Downward**	**-0.16716£**	≥95
CARBON TETRACHLORIDE	MW-38S	ug/l	**Downward**	**-0.13135£**	≥95
CARBON TETRACHLORIDE	MW-42I	ug/l	**Downward**	**-0.13392£**	≥95
CARBON TETRACHLORIDE	MW-44D	ug/l	**Downward**	**-0.08891£**	≥95
CARBON TETRACHLORIDE	MW-56D	ug/l	**Downward**	**-0.24548£**	≥95
CARBON TETRACHLORIDE	MW-56I	ug/l	**Downward**	**-0.22232£**	≥95
CARBON TETRACHLORIDE	MW-56S	ug/l	**Downward**	**-0.18778£**	≥95
CARBON TETRACHLORIDE	RAW-01D	ug/l	No Trend	-0.01417£	≥95Ø
CARBON TETRACHLORIDE	RAW-01I	ug/l	**Downward**	**-0.17409£**	≥95
CARBON TETRACHLORIDE	RMW-02S	ug/l	**Downward**	**-0.18650£**	≥95
CHLOROFORM	DSMW-01	ug/l	**Downward**	**-0.02095£**	≥95
CHLOROFORM	DSMW-03	ug/l	**Downward**	**-0.03370£**	≥95
CHLOROFORM	DSMW-04	ug/l	**Downward**	**-0.03651£**	≥95
CHLOROFORM	DSMW-07I	ug/l	No Trend	-0.18626£	93
CHLOROFORM	DSMW-07S	ug/l	No Trend	-0.21577£	≥95Ø
CHLOROFORM	DSMW-08S	ug/l	**Upward**	**0.10402£**	≥95
CHLOROFORM	DSMW-09D	ug/l	No Trend	-0.09690£	89
CHLOROFORM	MW-02D	ug/l	**Downward**	**-0.07209£**	≥95
CHLOROFORM	MW-02S	ug/l	**Downward**	**-0.04428£**	≥95
CHLOROFORM	MW-07D	ug/l	**Downward**	**-0.08589£**	≥95
CHLOROFORM	MW-08BR	ug/l	No Trend⊥	-0.05560£	≥95Ø⊥
CHLOROFORM	MW-08D	ug/l	**Downward**	**-0.02842£**	≥95
CHLOROFORM	MW-08S	ug/l	**Downward**	**-0.05524£**	≥95
CHLOROFORM	MW-14	ug/l	**Upward**	**0.02328£**	≥95
CHLOROFORM	MW-23D	ug/l	No Trend⊥	0.03161£	≥95Ø⊥
CHLOROFORM	MW-23S	ug/l	No Trend⊥	-0.00481£	≥95Ø⊥
CHLOROFORM	MW-37D	ug/l	No Trend	0.02526£	87
CHLOROFORM	MW-38D	ug/l	**Downward**	**-0.09708£**	≥95
CHLOROFORM	MW-42I	ug/l	**Downward**	**-0.02444£**	≥95
CHLOROFORM	MW-44D	ug/l	No Trend	-0.05339£	≥95Ø
CHLOROFORM	MW-56D	ug/l	**Downward**	**-0.15252£**	≥95
CHLOROFORM	MW-56I	ug/l	**Downward**	**-0.07033£**	≥95
CHLOROFORM	MW-56S	ug/l	**Downward**	**-0.04543£**	≥95
CHLOROFORM	RAW-01D	ug/l	No Trend	-0.01853£	87
CHLOROFORM	RAW-01I	ug/l	**Downward**	**-0.15049£**	≥95
TRICHLOROETHYLENE (TCE)	DSMW-02	ug/l	No Trend	-0.09468£	87
TRICHLOROETHYLENE (TCE)	DSMW-03	ug/l	**Downward**	**-0.10447£**	≥95
TRICHLOROETHYLENE (TCE)	DSMW-04	ug/l	**Downward**	**-0.11883£**	≥95
TRICHLOROETHYLENE (TCE)	DSMW-04D	ug/l	**Downward**	**-0.48495£**	≥95
TRICHLOROETHYLENE (TCE)	DSMW-04S	ug/l	No Trend	-0.02780£	90

Table 2 Trend Test Results

Analyte	Well ID	Units	Trend Test Result	Slope Estimate	Mann-Kendall Confidence
TRICHLOROETHYLENE (TCE)	DSMW-07D	ug/l	**Downward**	**-0.11279£**	**≥95**
TRICHLOROETHYLENE (TCE)	DSMW-07I	ug/l	**Upward**	**0.06608£**	**≥95**
TRICHLOROETHYLENE (TCE)	DSMW-07S	ug/l	No Trend	0.29267£	92
TRICHLOROETHYLENE (TCE)	DSMW-08D	ug/l	**Downward**	**-0.09160£**	**≥95**
TRICHLOROETHYLENE (TCE)	DSMW-08I	ug/l	No Trend	0.01945£	88
TRICHLOROETHYLENE (TCE)	DSMW-08S	ug/l	No Trend	-0.08243£	≥95Ø
TRICHLOROETHYLENE (TCE)	DSMW-09D	ug/l	**Downward**	**-0.42489£**	**≥95**
TRICHLOROETHYLENE (TCE)	DSMW-09I	ug/l	**Upward**	**0.18281£**	**≥95**
TRICHLOROETHYLENE (TCE)	DSMW-10S	ug/l	No Trend	0.13704£	92
TRICHLOROETHYLENE (TCE)	EW-2	ug/l	**Downward**	**-0.06851£**	**≥95**
TRICHLOROETHYLENE (TCE)	EW-3	ug/l	No Trend	-0.02321£	≥95Ø
TRICHLOROETHYLENE (TCE)	GS-1	ug/l	**Downward**	**-0.32074£**	**≥95**
TRICHLOROETHYLENE (TCE)	GS-2	ug/l	**Downward**	**-0.21614£**	**≥95**
TRICHLOROETHYLENE (TCE)	GS-3D	ug/l	**Downward**	**-0.23806£**	**≥95**
TRICHLOROETHYLENE (TCE)	GS-3I	ug/l	**Downward**	**-0.28197£**	**≥95**
TRICHLOROETHYLENE (TCE)	GS-4	ug/l	**Upward**	**0.28286£**	**≥95**
TRICHLOROETHYLENE (TCE)	MW-02D	ug/l	**Downward**	**-0.21626£**	**≥95**
TRICHLOROETHYLENE (TCE)	MW-02S	ug/l	**Downward**	**-0.15317£**	**≥95**
TRICHLOROETHYLENE (TCE)	MW-05D	ug/l	**Upward**	**0.03274£**	**≥95**
TRICHLOROETHYLENE (TCE)	MW-07D	ug/l	**Downward**	**-0.04311£**	**≥95**
TRICHLOROETHYLENE (TCE)	MW-08BR	ug/l	No Trend	-0.03547£	≥95Ø
TRICHLOROETHYLENE (TCE)	MW-08D	ug/l	**Downward**	**-0.12041£**	**≥95**
TRICHLOROETHYLENE (TCE)	MW-08S	ug/l	**Downward**	**-0.11138£**	**≥95**
TRICHLOROETHYLENE (TCE)	MW-09D	ug/l	**Downward**	**-0.03503£**	**≥95**
TRICHLOROETHYLENE (TCE)	MW-23D	ug/l	No Trend	0.03118£	90
TRICHLOROETHYLENE (TCE)	MW-23S	ug/l	**Downward**	**-0.14291£**	**≥95**
TRICHLOROETHYLENE (TCE)	MW-34I	ug/l	**Downward**	**-0.42140£**	**≥95**
TRICHLOROETHYLENE (TCE)	MW-38S	ug/l	**Downward**	**-0.12394£**	**≥95**
TRICHLOROETHYLENE (TCE)	MW-3D	ug/l	**Downward**	**-0.08918£**	**≥95**
TRICHLOROETHYLENE (TCE)	MW-41	ug/l	**Downward**	**-0.11340£**	**≥95**
TRICHLOROETHYLENE (TCE)	MW-42I	ug/l	**Downward**	**-0.11422£**	**≥95**
TRICHLOROETHYLENE (TCE)	MW-43BR	ug/l	**Downward**	**-0.15779£**	**≥95**
TRICHLOROETHYLENE (TCE)	MW-44D	ug/l	No Trend	-0.03288£	≥95Ø
TRICHLOROETHYLENE (TCE)	MW-51D	ug/l	No Trend	-0.17173£	89
TRICHLOROETHYLENE (TCE)	MW-51I	ug/l	**Downward**	**-0.18502£**	**≥95**
TRICHLOROETHYLENE (TCE)	MW-53	ug/l	**Downward**	**-0.07060£**	**≥95**
TRICHLOROETHYLENE (TCE)	MW-55	ug/l	No Trend	0.29263£	≥95Ø
TRICHLOROETHYLENE (TCE)	MW-56D	ug/l	**Downward**	**-0.19287£**	**≥95**
TRICHLOROETHYLENE (TCE)	MW-56I	ug/l	**Downward**	**-0.20016£**	**≥95**
TRICHLOROETHYLENE (TCE)	MW-56S	ug/l	**Downward**	**-0.16818£**	**≥95**
1,1-DICHLOROETHENE	DSMW-08D	ug/l	No Trend⊥	-0.11187£	≥95Ø⊥
1,1-DICHLOROETHENE	DSMW-10D	ug/l	**Downward**	**-0.40075£**	**≥95**
1,1-DICHLOROETHENE	EW-3	ug/l	No Trend	-0.01338£	≥95Ø
1,1-DICHLOROETHENE	GS-3D	ug/l	No Trend	0.03037£	≥95Ø
1,1-DICHLOROETHENE	MW-09	ug/l	**Downward**	**-0.08801£**	**≥95**
1,1-DICHLOROETHENE	MW-3D	ug/l	No Trend⊥	-0.04074£	≥95Ø⊥
1,1-DICHLOROETHENE	MW-51D	ug/l	**Downward**	**-0.06442£**	**≥95**
1,1-DICHLOROETHENE	MW-51I	ug/l	**Downward⊥**	**-0.04783£**	**≥95⊥**
1,1-DICHLOROETHENE	RAW-01D	ug/l	**Downward**	**-0.01892£**	**≥95**

Table 2 Trend Test Results

Analyte	Well ID	Units	Trend Test Result	Slope Estimate	Mann-Kendall Confidence
CIS-1,2-DICHLOROETHYLENE	DSMW-04D	ug/l	**Downward**	**-0.12030£**	**≥95**
CIS-1,2-DICHLOROETHYLENE	DSMW-04I	ug/l	**Downward**	**-0.53849£**	**≥95**
CIS-1,2-DICHLOROETHYLENE	DSMW-04S	ug/l	No Trend⊥	-0.31905£	≥95Ø⊥
CIS-1,2-DICHLOROETHYLENE	DSMW-07D	ug/l	No Trend	-0.04820£	94
CIS-1,2-DICHLOROETHYLENE	DSMW-07I	ug/l	**Downward**	**-0.35795£**	**≥95**
CIS-1,2-DICHLOROETHYLENE	DSMW-07S	ug/l	No Trend⊥	-0.13639£	≥95Ø⊥
CIS-1,2-DICHLOROETHYLENE	DSMW-08D	ug/l	**Upward**	**0.06466£**	**≥95**
CIS-1,2-DICHLOROETHYLENE	DSMW-08I	ug/l	**Downward**	**-0.15095£**	**≥95**
CIS-1,2-DICHLOROETHYLENE	DSMW-09D	ug/l	**Downward**	**-0.19126£**	**≥95**
CIS-1,2-DICHLOROETHYLENE	DSMW-10I	ug/l	**Downward**	**-0.22531£**	**≥95**
CIS-1,2-DICHLOROETHYLENE	EW-3	ug/l	No Trend	0.01874£	93
CIS-1,2-DICHLOROETHYLENE	GS-3D	ug/l	**Downward**	**-0.24042£**	**≥95**
CIS-1,2-DICHLOROETHYLENE	MW-09D	ug/l	No Trend⊥	-0.03589£	≥95Ø⊥
CIS-1,2-DICHLOROETHYLENE	MW-23S	ug/l	No Trend⊥	-0.00817£	≥95Ø⊥
CIS-1,2-DICHLOROETHYLENE	MW-31	ug/l	No Trend	-0.01117£	≥95Ø
CIS-1,2-DICHLOROETHYLENE	MW-41	ug/l	No Trend⊥	-0.09763£	≥95Ø⊥
CIS-1,2-DICHLOROETHYLENE	MW-51D	ug/l	No Trend⊥	-0.08787£	93⊥
CIS-1,2-DICHLOROETHYLENE	MW-51I	ug/l	**Downward**	**-0.08179£**	**≥95**
CIS-1,2-DICHLOROETHYLENE	MW-55	ug/l	No Trend	-0.02007£	≥95Ø
TRANS-1,2-DICHLOROETHENE	MW-3D	ug/l	No Trend⊥	-0.01545£	≥95Ø⊥
TETRACHLOROETHYLENE(PCE)	MW-23S	ug/l	**Downward**	**-0.05947£**	**≥95**
TETRACHLOROETHYLENE(PCE)	MW-34I	ug/l	No Trend⊥	-0.05073£	≥95Ø⊥
VINYL CHLORIDE	DSMW-10D	ug/l	**Downward**	**-0.21801£**	**≥95**
VINYL CHLORIDE	EW-3	ug/l	**Downward**	**-0.03279£**	**≥95**
VINYL CHLORIDE	MW-3D	ug/l	**Downward**	**-0.09052£**	**≥95**

Notes:
1-Trend results listed in this table have a confidence level > 85%.
2-Significant Trend Test Results reported as "Upward "or "Downward "using a 95% confidence level.
3- When used, ND surrogate = 0.5 X Median of Nondetects' Reporting Detection Limits

£ means slope estimate for log-transformed data, with units of "1/yr". Log(2) times its reciprocal is doubling(+)/halving(-) time.
⊥ indicates caution is needed because test data contain large proportion of nondetects.
Ø indicates slope confidence interval contains zero, despite confidence attained value.
t indicates numerical disagreement between two trend methods. Highlighting indicates recommended result.

Table 3 List of Wells Included in Capture Zone Analysis

Well Name	Well Name	Well Name
BMW-09S	MW-10D	MW-54
BMW-6D	MW-11D	MW-55
DSMW-01	MW-15	MW-56I
DSMW-02	MW-19D	NE-26I
DSMW-03	MW-21D	NE-50I
DSMW-04I	MW-23D	NE-80I
DSMW-05I	MW-27I	OW1-I
DSMW-06I	MW-29I	OW2-1I
DSMW-07I	MW-30D	OW2-2I
DSMW-08I	MW-30I	OW2-3S
DSMW-09I	MW-31I	OW3-1I
DSMW-10I	MW-35S	OW3-2I
GS-1	MW-38D	OW4-1I
GS-2	MW-3I	OW5-I
GS-3I	MW-40	RAW-01I
GS-4	MW-41	RAW-02I
MW-02D	MW-42I	RMW-02D
MW-04D	MW-43BR	
MW-05D	MW-44D	
MW-07D	MW-50	
MW-08D	MW-51I	
MW-09D	MW-53	

Notes:
1-List of wells used to query the site water level database to complete the hydraulic capture analyses.
2-This list corresponds to the group of wells selected by URS for analysis of capture in the intermediate aquifer zone during Rail Yard System optimization - Event #1 (electronic mail from Wayne Lawrence on February 25, 2013), and modified as recommended by SSP&A (2013) by excluding unrepresentative wells MW-16, and MW-34I.

APPENDIX A

CONRAIL											
			Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
Analyte Name	Well ID	Units	Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
CARBON TETRACHLORIDE	BMW-01	ug/l	NSD			NSD		5.00	NSD		<0.20
CARBON TETRACHLORIDE	BMW-02	ug/l	NSD			NSD		5.00	NSD		<0.20
CARBON TETRACHLORIDE	BMW-03	ug/l	No Trend⊥	0.00000£	40⊥	NSD		5.00	No Change⊥	1.10	<1.00
CARBON TETRACHLORIDE	BMW-04	ug/l	NSD			NSD		5.00	NSD		<1.00
CARBON TETRACHLORIDE	BMW-04D	ug/l	NSD			NSD		5.00	NSD		5.00
CARBON TETRACHLORIDE	BMW-04S	ug/l	NSD			NSD		5.00	NSD		0.40
CARBON TETRACHLORIDE	BMW-05D	ug/l	NSD			NSD		5.00	NSD		<0.20
CARBON TETRACHLORIDE	BMW-05S	ug/l	NSD			NSD		5.00	NSD		14.00
CARBON TETRACHLORIDE	BMW-06	ug/l	NSD			NSD		5.00	NSD		5300.00
CARBON TETRACHLORIDE	BMW-06D	ug/l	NSD			NSD		5.00	NSD		1100.00
CARBON TETRACHLORIDE	BMW-06S	ug/l	NSD			NSD		5.00	NSD		<1.00
CARBON TETRACHLORIDE	BMW-07	ug/l	NSD			NSD		5.00	NSD		22.00
CARBON TETRACHLORIDE	BMW-07D	ug/l	NSD			NSD		5.00	NSD		<1.00
CARBON TETRACHLORIDE	BMW-07S	ug/l	NSD			NSD		5.00	NSD		<1.00
CARBON TETRACHLORIDE	BMW-08	ug/l	NSD			NSD		5.00	NSD		5.80
CARBON TETRACHLORIDE	BMW-08D	ug/l	NSD			NSD		5.00	NSD		1.00
CARBON TETRACHLORIDE	BMW-08S	ug/l	NSD			NSD		5.00	NSD		2.30
CARBON TETRACHLORIDE	BMW-09	ug/l	NSD			NSD		5.00	NSD		<1.00
CARBON TETRACHLORIDE	BMW-09D	ug/l	NSD			NSD		5.00	NSD		<1.00
CARBON TETRACHLORIDE	BMW-09S	ug/l	NSD			NSD		5.00	NSD		<1.00
CARBON TETRACHLORIDE	BMW-10	ug/l	No Trend⊥	0.00000£	37⊥	NSD		5.00	No Change⊥	1.20	<1.00
CARBON TETRACHLORIDE	BMW-10D	ug/l	NSD			NSD		5.00	NSD		<0.20
CARBON TETRACHLORIDE	BMW-10S	ug/l	NSD			NSD		5.00	NSD		<0.20
CARBON TETRACHLORIDE	DSMW-01	ug/l	Downward	-0.08113£	≥95	Exceedance	72.61	5.00	No Change	80.82	63.00
CARBON TETRACHLORIDE	DSMW-02	ug/l	No Trend	-0.07375£	79	Exceedance	186.38	5.00	No Change	227.73	130.00

CONRAIL												
			Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
Analyte Name	Well ID	Units	Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
CARBON TETRACHLORIDE	DSMW-03	ug/l	Downward	-0.19012£	≥95	Exceedance	87.98	5.00	No Change	553.29	52.00
CARBON TETRACHLORIDE	DSMW-04	ug/l	Downward	-0.11379£	≥95	NSD		5.00	No Change	1288.29	700.00
CARBON TETRACHLORIDE	DSMW-04D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
CARBON TETRACHLORIDE	DSMW-04I	ug/l	Downward	-0.23371£	≥95	Exceedance	1071.03	5.00	No Change	1420.46	510.00
CARBON TETRACHLORIDE	DSMW-04S	ug/l	No Trend	-0.02802£	68	Exceedance	645.83	5.00	No Change	775.73	610.00
CARBON TETRACHLORIDE	DSMW-07D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
CARBON TETRACHLORIDE	DSMW-07I	ug/l	No Trend	0.09247£	93	Exceedance	1275.96	5.00	No Change	1543.19	1100.00
CARBON TETRACHLORIDE	DSMW-07S	ug/l	No Trend	-0.06600£	71	Exceedance	1092.39	5.00	No Change	1621.41	910.00
CARBON TETRACHLORIDE	DSMW-08D	ug/l	No Trend⊥	0.00000£	92⊥	Compliance⊥	0.73	5.00	No Change⊥	1.10	0.73
CARBON TETRACHLORIDE	DSMW-08I	ug/l	No Trend	-0.04023£	91	Exceedance	99.70	5.00	No Change	111.02	72.00
CARBON TETRACHLORIDE	DSMW-08S	ug/l	No Trend	0.00000£	50	Exceedance	37.00	5.00	No Change	39.34	26.00
CARBON TETRACHLORIDE	DSMW-09D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
CARBON TETRACHLORIDE	DSMW-09I	ug/l	No Trend	-0.06550£	65	Exceedance	473.06	5.00	No Change	517.47	420.00
CARBON TETRACHLORIDE	DSMW-09S	ug/l	No Trend	0.08344£	73	Exceedance	29.00	5.00	No Change	30.73	25.00
CARBON TETRACHLORIDE	DSMW-10D	ug/l	No Trend⊥	0.00000£	73⊥	Compliance⊥	1.00	5.00	No Change⊥	2.04	1.00
CARBON TETRACHLORIDE	DSMW-10I	ug/l	No Trend⊥	0.00000£	85⊥	Compliance⊥	3.55	5.00	No Change⊥	10.09	2.10
CARBON TETRACHLORIDE	DSMW-10S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
CARBON TETRACHLORIDE	E05	ug/l	NSD			NSD		5.00	NSD		14.00
CARBON TETRACHLORIDE	E09	ug/l	NSD			NSD		5.00	NSD		<2.00
CARBON TETRACHLORIDE	E11	ug/l	NSD			NSD		5.00	NSD		420.00
CARBON TETRACHLORIDE	E12	ug/l	NSD			NSD		5.00	NSD		<4.70
CARBON TETRACHLORIDE	EW-1	ug/l	NSD			NSD		5.00	NSD		0.17
CARBON TETRACHLORIDE	EW-2	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance	0.79	5.00	No Change	1.35	0.79
CARBON TETRACHLORIDE	EW-3	ug/l	No Trend⊥	-0.08848£	≥95Ø⊥	Compliance	0.46	5.00	Better	1.06	<1.00
CARBON TETRACHLORIDE	EW-4	ug/l	No Trend	0.01074£	76	Exceedance	277.18	5.00	No Change	346.66	180.00

CONRAIL												
Analyte Name	Well ID	Units	Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)			
			Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)	
CARBON TETRACHLORIDE	EW-5	ug/l	NSD			NSD		5.00	NSD		28.00	
CARBON TETRACHLORIDE	GCW-1	ug/l	NSD			NSD		5.00	NSD		<83.00	
CARBON TETRACHLORIDE	GCWWATEREFF	ug/l	No Trend	-0.02294£	67	Exceedance	88.21	5.00	No Change	105.07	97.00	
CARBON TETRACHLORIDE	GCWWATERIN	ug/l	Downward	-0.13635£	≥95	Exceedance	577.53	5.00	No Change	1225.27	500.00	
CARBON TETRACHLORIDE	GS-1	ug/l	No Trend⊥	0.00000£	94⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	0.48	
CARBON TETRACHLORIDE	GS-2	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance	1.17	5.00	No Change	1.31	1.20	
CARBON TETRACHLORIDE	GS-3D	ug/l	No Trend⊥	0.00000£	62⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
CARBON TETRACHLORIDE	GS-3I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance	0.79	5.00	No Change	1.24	0.39	
CARBON TETRACHLORIDE	GS-4	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
CARBON TETRACHLORIDE	MW-01	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		5.00	No Change⊥	11.00	<1.00	
CARBON TETRACHLORIDE	MW-02BR	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
CARBON TETRACHLORIDE	MW-02D	ug/l	Downward	-0.13083£	≥95	Compliance	2.73	5.00	No Change	15.58	2.60	
CARBON TETRACHLORIDE	MW-02S	ug/l	Downward	-0.14919£	≥95	Compliance	4.14	5.00	No Change	9.11	3.80	
CARBON TETRACHLORIDE	MW-03	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		5.00	No Change⊥	11.00	<1.00	
CARBON TETRACHLORIDE	MW-04D	ug/l	No Trend⊥	0.00000£	50⊥	NSD		5.00	No Change⊥	11.00	<1.00	
CARBON TETRACHLORIDE	MW-04S	ug/l	No Trend⊥	0.00000£	66⊥	NSD		5.00	No Change⊥	11.00	<1.00	
CARBON TETRACHLORIDE	MW-05D	ug/l	Downward	-0.05341£	≥95	Exceedance	9.51	5.00	No Change	9.75	9.50	
CARBON TETRACHLORIDE	MW-05S	ug/l	No Trend⊥	0.00000£	94⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
CARBON TETRACHLORIDE	MW-06	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		5.00	No Change⊥	11.00	<10.00	
CARBON TETRACHLORIDE	MW-07D	ug/l	Upward	0.05112£	≥95	Exceedance	228.82	5.00	No Change	237.33	220.00	
CARBON TETRACHLORIDE	MW-07S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
CARBON TETRACHLORIDE	MW-08BR	ug/l	Downward⊥	-0.12128£	≥95⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
CARBON TETRACHLORIDE	MW-08D	ug/l	Downward	-0.09964£	≥95	Exceedance	86.43	5.00	No Change	91.04	80.00	
CARBON TETRACHLORIDE	MW-08S	ug/l	Downward	-0.11682£	≥95	Exceedance	99.85	5.00	No Change	106.73	92.00	

CONRAIL												
Analyte Name	Well ID	Units	Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)			
			Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)	
CARBON TETRACHLORIDE	MW-09	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
CARBON TETRACHLORIDE	MW-09D	ug/l	No Trend⊥	0.00000£	85⊥	Compliance⊥	2.50	5.00	No Change⊥	5.50	<5.00	
CARBON TETRACHLORIDE	MW-09S	ug/l	NSD			NSD		5.00	NSD		<1.00	
CARBON TETRACHLORIDE	MW-10D	ug/l	No Trend⊥	0.00000£	40⊥	NSD		5.00	No Change⊥	11.00	<1.00	
CARBON TETRACHLORIDE	MW-10S	ug/l	No Trend⊥	0.00000£	40⊥	NSD		5.00	No Change⊥	11.00	<1.00	
CARBON TETRACHLORIDE	MW-11D	ug/l	No Trend⊥	0.00000£	37⊥	NSD		5.00	No Change⊥	12.00	<10.00	
CARBON TETRACHLORIDE	MW-11S	ug/l	NSD			NSD		5.00	NSD		<10.00	
CARBON TETRACHLORIDE	MW-12	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
CARBON TETRACHLORIDE	MW-13D	ug/l	NSD			NSD		5.00	NSD		<10.00	
CARBON TETRACHLORIDE	MW-13S	ug/l	NSD			NSD		5.00	NSD		<10.00	
CARBON TETRACHLORIDE	MW-14	ug/l	Downward	-0.04259£	≥95	Compliance	0.58	5.00	No Change	0.79	0.30	
CARBON TETRACHLORIDE	MW-15	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
CARBON TETRACHLORIDE	MW-16	ug/l	NSD			NSD		5.00	NSD		<10.00	
CARBON TETRACHLORIDE	MW-17	ug/l	NSD			NSD		5.00	NSD		<1.00	
CARBON TETRACHLORIDE	MW-18	ug/l	NSD			NSD		5.00	NSD		<10.00	
CARBON TETRACHLORIDE	MW-19D	ug/l	NSD			NSD		5.00	NSD		<10.00	
CARBON TETRACHLORIDE	MW-19S	ug/l	NSD			NSD		5.00	NSD		<10.00	
CARBON TETRACHLORIDE	MW-20D	ug/l	No Trend⊥	0.00000£	37⊥	NSD		5.00	No Change⊥	6.60	<1.00	
CARBON TETRACHLORIDE	MW-20S	ug/l	No Trend⊥	-0.14116£	72⊥	NSD		5.00	No Change⊥	12.00	0.90	
CARBON TETRACHLORIDE	MW-21D	ug/l	No Trend⊥	0.00000£	37⊥	NSD		5.00	No Change⊥	6.60	<1.00	
CARBON TETRACHLORIDE	MW-21S	ug/l	No Trend⊥	0.00000£	37⊥	NSD		5.00	No Change⊥	6.60	<1.00	
CARBON TETRACHLORIDE	MW-23D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Exceedance	24.80	5.00	No Change	103.39	8.20	
CARBON TETRACHLORIDE	MW-23S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance	2.73	5.00	No Change	3.20	2.00	
CARBON TETRACHLORIDE	MW-24	ug/l	Downward	-0.19181£	≥95	Compliance	0.33	5.00	No Change	1.67	0.26	
CARBON TETRACHLORIDE	MW-25	ug/l	No Trend⊥	0.00000£	90⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	

CONRAIL											
			Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
Analyte Name	Well ID	Units	Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
CARBON TETRACHLORIDE	MW-26	ug/l	NSD			NSD		5.00	NSD		24.00
CARBON TETRACHLORIDE	MW-27I	ug/l	NSD			NSD		5.00	NSD		<1.00
CARBON TETRACHLORIDE	MW-27S	ug/l	NSD			NSD		5.00	NSD		<10.00
CARBON TETRACHLORIDE	MW-28I	ug/l	NSD			NSD		5.00	NSD		<10.00
CARBON TETRACHLORIDE	MW-28S	ug/l	NSD			NSD		5.00	NSD		<10.00
CARBON TETRACHLORIDE	MW-29I	ug/l	NSD			NSD		5.00	NSD		<1.00
CARBON TETRACHLORIDE	MW-29S	ug/l	NSD			NSD		5.00	NSD		<10.00
CARBON TETRACHLORIDE	MW-30BR	ug/l	NSD			NSD		5.00	NSD		<1.00
CARBON TETRACHLORIDE	MW-30D	ug/l	NSD			NSD		5.00	NSD		<1.00
CARBON TETRACHLORIDE	MW-30I	ug/l	No Trend⊥	0.00000£	37⊥	NSD		5.00	No Change⊥	12.00	<1.00
CARBON TETRACHLORIDE	MW-30S	ug/l	NSD			NSD		5.00	NSD		<10.00
CARBON TETRACHLORIDE	MW-31I	ug/l	No Trend⊥	0.00000£	37⊥	NSD		5.00	No Change⊥	6.60	<1.00
CARBON TETRACHLORIDE	MW-31S	ug/l	NSD			NSD		5.00	NSD		<1.00
CARBON TETRACHLORIDE	MW-32I	ug/l	NSD			NSD		5.00	NSD		1.00
CARBON TETRACHLORIDE	MW-32S	ug/l	NSD			NSD		5.00	NSD		<1.00
CARBON TETRACHLORIDE	MW-33I	ug/l	No Trend⊥	0.00154£	72⊥	NSD		5.00	No Change⊥	12.00	5.30
CARBON TETRACHLORIDE	MW-33S	ug/l	NSD			NSD		5.00	NSD		<1.00
CARBON TETRACHLORIDE	MW-34I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Exceedance	23.46	5.00	No Change	29.23	15.00
CARBON TETRACHLORIDE	MW-35S	ug/l	NSD			NSD		5.00	NSD		<10.00
CARBON TETRACHLORIDE	MW-36I	ug/l	NSD			NSD		5.00	NSD		<20.00
CARBON TETRACHLORIDE	MW-37D	ug/l	No Trend	0.01724£	80	NSD		5.00	No Change	89.41	71.00
CARBON TETRACHLORIDE	MW-37S	ug/l	Downward	-0.08767£	≥95	NSD		5.00	No Change	16.62	5.30
CARBON TETRACHLORIDE	MW-38D	ug/l	Downward	-0.16716£	≥95	Exceedance	175.42	5.00	No Change	392.73	120.00
CARBON TETRACHLORIDE	MW-38S	ug/l	Downward	-0.13135£	≥95	Exceedance	69.46	5.00	No Change	98.26	50.00
CARBON TETRACHLORIDE	MW-39S	ug/l	NSD			NSD		5.00	NSD		<10.00

CONRAIL

Analyte Name	Well ID	Units	Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
			Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
CARBON TETRACHLORIDE	MW-3D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
CARBON TETRACHLORIDE	MW-3I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	1.00	5.00	**Worse⊥**	**1.93**	**<2.00**
CARBON TETRACHLORIDE	MW-40	ug/l	NSD			NSD		5.00	NSD		19.00
CARBON TETRACHLORIDE	MW-41	ug/l	No Trend⊥	0.00000£	94⊥	Compliance⊥	1.25	5.00	No Change⊥	3.63	<1.00
CARBON TETRACHLORIDE	MW-42I	ug/l	Downward	-0.13392£	≥95	Exceedance	16.02	5.00	No Change	21.03	9.90
CARBON TETRACHLORIDE	MW-43BR	ug/l	No Trend⊥	0.00000£	63⊥	Compliance⊥	0.88	5.00	No Change⊥	1.10	0.88
CARBON TETRACHLORIDE	MW-43S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		5.00	No Change⊥	11.00	<1.00
CARBON TETRACHLORIDE	MW-44D	ug/l	Downward	-0.08891£	≥95	Exceedance	137.60	5.00	No Change	157.22	100.00
CARBON TETRACHLORIDE	MW-45	ug/l	NSD			NSD		5.00	NSD		34.00
CARBON TETRACHLORIDE	MW-46I	ug/l	NSD			NSD		5.00	NSD		3.00
CARBON TETRACHLORIDE	MW-46S	ug/l	NSD			NSD		5.00	NSD		110000.00
CARBON TETRACHLORIDE	MW-47	ug/l	NSD			NSD		5.00	NSD		<50.00
CARBON TETRACHLORIDE	MW-48	ug/l	NSD			NSD		5.00	NSD		<1.00
CARBON TETRACHLORIDE	MW-49BR	ug/l	NSD			NSD		5.00	NSD		47.00
CARBON TETRACHLORIDE	MW-49D	ug/l	NSD			NSD		5.00	NSD		1.00
CARBON TETRACHLORIDE	MW-50	ug/l	No Trend	0.08653£	73	Exceedance	95.85	5.00	No Change	104.37	63.00
CARBON TETRACHLORIDE	MW-51D	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
CARBON TETRACHLORIDE	MW-51I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
CARBON TETRACHLORIDE	MW-53	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
CARBON TETRACHLORIDE	MW-54	ug/l	NSD			NSD		5.00	NSD		<2.00
CARBON TETRACHLORIDE	MW-55	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
CARBON TETRACHLORIDE	MW-56D	ug/l	Downward	-0.24548£	≥95	Exceedance	39.81	5.00	Better	47.84	16.00
CARBON TETRACHLORIDE	MW-56I	ug/l	Downward	-0.22232£	≥95	Exceedance	179.78	5.00	No Change	239.50	180.00
CARBON TETRACHLORIDE	MW-56S	ug/l	Downward	-0.18778£	≥95	Exceedance	177.48	5.00	No Change	293.97	140.00
CARBON TETRACHLORIDE	NE-26D	ug/l	NSD			NSD		5.00	NSD		<1.00

CONRAIL												
Analyte Name	Well ID	Units	Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)			
			Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)	
CARBON TETRACHLORIDE	NE-26I	ug/l	NSD			NSD		5.00	NSD		<20.00	
CARBON TETRACHLORIDE	NE-26S	ug/l	NSD			NSD		5.00	NSD		<59.00	
CARBON TETRACHLORIDE	NE-50D	ug/l	NSD			NSD		5.00	NSD		<1.00	
CARBON TETRACHLORIDE	NE-50I	ug/l	NSD			NSD		5.00	NSD		<2.00	
CARBON TETRACHLORIDE	NE-50S	ug/l	NSD			NSD		5.00	NSD		<1.00	
CARBON TETRACHLORIDE	NE-80D	ug/l	NSD			NSD		5.00	NSD		<1.00	
CARBON TETRACHLORIDE	NE-80I	ug/l	NSD			NSD		5.00	NSD		<1.00	
CARBON TETRACHLORIDE	NE-80S	ug/l	NSD			NSD		5.00	NSD		<1.00	
CARBON TETRACHLORIDE	OW1-D	ug/l	NSD			NSD		5.00	NSD		<1.00	
CARBON TETRACHLORIDE	OW1-I	ug/l	NSD			NSD		5.00	NSD		<1.00	
CARBON TETRACHLORIDE	OW1-S	ug/l	NSD			NSD		5.00	NSD		<1.00	
CARBON TETRACHLORIDE	OW2-2D	ug/l	NSD			NSD		5.00	NSD		<1.00	
CARBON TETRACHLORIDE	OW2-2I	ug/l	NSD			NSD		5.00	NSD		<1.00	
CARBON TETRACHLORIDE	OW2-2S	ug/l	NSD			NSD		5.00	NSD		<1.00	
CARBON TETRACHLORIDE	OW2-3D	ug/l	NSD			NSD		5.00	NSD		<1.00	
CARBON TETRACHLORIDE	OW2-3S	ug/l	NSD			NSD		5.00	NSD		7.30	
CARBON TETRACHLORIDE	OW3-1D	ug/l	NSD			NSD		5.00	NSD		<1.00	
CARBON TETRACHLORIDE	OW3-1I	ug/l	NSD			NSD		5.00	NSD		<1.00	
CARBON TETRACHLORIDE	OW4-1D	ug/l	NSD			NSD		5.00	NSD		<1.00	
CARBON TETRACHLORIDE	OW4-1I	ug/l	NSD			NSD		5.00	NSD		100.00	
CARBON TETRACHLORIDE	OW4-1S	ug/l	NSD			NSD		5.00	NSD		650.00	
CARBON TETRACHLORIDE	OW5-D	ug/l	NSD			NSD		5.00	NSD		<1.00	
CARBON TETRACHLORIDE	OW5-I	ug/l	NSD			NSD		5.00	NSD		32.00	
CARBON TETRACHLORIDE	OW5-S	ug/l	NSD			NSD		5.00	NSD		18.00	
CARBON TETRACHLORIDE	PDPW-1	ug/l	NSD			NSD		5.00	NSD		200.00	

CONRAIL											
			Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
Analyte Name	Well ID	Units	Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
CARBON TETRACHLORIDE	RAW-01D	ug/l	No Trend	-0.01417£	≥95Ø	Compliance⊥	0.61	5.00	No Change	0.82	0.45
CARBON TETRACHLORIDE	RAW-01I	ug/l	Downward	-0.17409£	≥95	Exceedance	1969.19	5.00	No Change	2248.19	1200.00
CARBON TETRACHLORIDE	RAW-01S	ug/l	No Trend⊥	0.00000£	50⊥	Compliance⊥	0.91	5.00	No Change⊥	1.10	<1.00
CARBON TETRACHLORIDE	RAW-02D	ug/l	No Trend⊥	0.00000£	45⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
CARBON TETRACHLORIDE	RAW-02I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
CARBON TETRACHLORIDE	RAW-02S	ug/l	No Trend⊥	0.00000£	45⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
CARBON TETRACHLORIDE	RMW-01	ug/l	NSD			NSD		5.00	NSD		<0.20
CARBON TETRACHLORIDE	RMW-02D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
CARBON TETRACHLORIDE	RMW-02S	ug/l	Downward	-0.18650£	≥95	Compliance	0.63	5.00	No Change	1.21	0.51
CARBON TETRACHLORIDE	RMW-03	ug/l	NSD			NSD		5.00	NSD		<0.20
CARBON TETRACHLORIDE	RMW-04	ug/l	NSD			NSD		5.00	NSD		<0.20
CARBON TETRACHLORIDE	RMW-05	ug/l	NSD			NSD		5.00	NSD		<0.20
CARBON TETRACHLORIDE	RMW-06	ug/l	NSD			NSD		5.00	NSD		<0.20
CARBON TETRACHLORIDE	RMW-07	ug/l	NSD			NSD		5.00	NSD		<0.20
CARBON TETRACHLORIDE	RYWATER EFF	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	2.50	5.00	No Change⊥	5.50	<5.00
CARBON TETRACHLORIDE	RYWATERIN	ug/l	No Trend	0.03056£	≥95Ø	Exceedance	67.13	5.00	No Change	72.38	50.00
CARBON TETRACHLORIDE	W07	ug/l	NSD			NSD		5.00	NSD		620.00
CARBON TETRACHLORIDE	W08	ug/l	NSD			NSD		5.00	NSD		360.00
CARBON TETRACHLORIDE	W09	ug/l	NSD			NSD		5.00	NSD		520.00
CHLOROFORM	BMW-03	ug/l	NSD			NSD		6.00	NSD		<1.00
CHLOROFORM	BMW-06D	ug/l	NSD			NSD		6.00	NSD		68.00
CHLOROFORM	BMW-06S	ug/l	NSD			NSD		6.00	NSD		<1.00
CHLOROFORM	BMW-07D	ug/l	NSD			NSD		6.00	NSD		<1.00
CHLOROFORM	BMW-07S	ug/l	NSD			NSD		6.00	NSD		<1.00

CONRAIL												
			Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
Analyte Name	Well ID	Units	Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
CHLOROFORM	BMW-09D	ug/l	NSD			NSD		6.00	NSD		<1.00
CHLOROFORM	BMW-09S	ug/l	NSD			NSD		6.00	NSD		<1.00
CHLOROFORM	BMW-10	ug/l	NSD			NSD		6.00	NSD		<1.00
CHLOROFORM	DSMW-01	ug/l	Downward	-0.02095£	≥95	Compliance	3.10	6.00	No Change	3.49	2.90
CHLOROFORM	DSMW-02	ug/l	No Trend	0.02057£	74	Exceedance	6.96	6.00	No Change	7.24	7.20
CHLOROFORM	DSMW-03	ug/l	Downward	-0.03370£	≥95	Exceedance	17.76	6.00	No Change	32.88	13.00
CHLOROFORM	DSMW-04	ug/l	Downward	-0.03651£	≥95	NSD		6.00	No Change	44.37	30.00
CHLOROFORM	DSMW-04D	ug/l	No Trend⊥	0.00000£	53⊥	Compliance⊥	0.50	6.00	No Change⊥	1.10	<1.00
CHLOROFORM	DSMW-04I	ug/l	No Trend	0.00000£	55	Exceedance	121.32	6.00	No Change	126.12	94.00
CHLOROFORM	DSMW-04S	ug/l	No Trend	-0.03781£	81	Exceedance	36.66	6.00	No Change	40.61	34.00
CHLOROFORM	DSMW-07D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	6.00	No Change⊥	1.10	<1.00
CHLOROFORM	DSMW-07I	ug/l	No Trend	-0.18626£	93	Exceedance	58.38	6.00	No Change	58.92	56.00
CHLOROFORM	DSMW-07S	ug/l	No Trend	-0.21577£	≥95Ø	Exceedance	19.99	6.00	No Change	26.34	12.00
CHLOROFORM	DSMW-08D	ug/l	No Trend⊥	0.00000£	50⊥	Compliance⊥	0.50	6.00	No Change⊥	1.10	<1.00
CHLOROFORM	DSMW-08I	ug/l	No Trend	0.00000£	66	Exceedance	17.96	6.00	No Change	18.67	17.00
CHLOROFORM	DSMW-08S	ug/l	Upward	0.10402£	≥95	Compliance	3.14	6.00	No Change	3.28	2.80
CHLOROFORM	DSMW-09D	ug/l	No Trend	-0.09690£	89	Compliance	0.49	6.00	Better	2.32	<1.00
CHLOROFORM	DSMW-09I	ug/l	No Trend	-0.01498£	52	Exceedance	47.38	6.00	No Change	49.53	47.00
CHLOROFORM	DSMW-09S	ug/l	No Trend	-0.02744£	79	Compliance	2.34	6.00	No Change	2.39	2.20
CHLOROFORM	DSMW-10D	ug/l	No Trend⊥	0.00000£	50⊥	Compliance⊥	0.85	6.00	No Change⊥	1.87	<1.00
CHLOROFORM	DSMW-10I	ug/l	No Trend⊥	0.00000£	92⊥	Compliance⊥	3.55	6.00	No Change⊥	9.13	1.20
CHLOROFORM	DSMW-10S	ug/l	No Trend⊥	0.00000£	92⊥	Compliance⊥	0.50	6.00	No Change⊥	1.10	<1.00
CHLOROFORM	E05	ug/l	NSD			NSD		6.00	NSD		67.00
CHLOROFORM	E09	ug/l	NSD			NSD		6.00	NSD		<2.00
CHLOROFORM	E11	ug/l	NSD			NSD		6.00	NSD		21.00

CONRAIL											
			Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
Analyte Name	Well ID	Units	Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
CHLOROFORM	E12	ug/l	NSD			NSD		6.00	NSD		<4.70
CHLOROFORM	EW-1	ug/l	NSD			NSD		6.00	NSD		0.63
CHLOROFORM	EW-2	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance	0.46	6.00	No Change	1.28	0.45
CHLOROFORM	EW-3	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.70	6.00	No Change⊥	1.10	0.70
CHLOROFORM	EW-4	ug/l	No Trend	0.00352£	72	Exceedance	210.15	6.00	No Change	376.06	200.00
CHLOROFORM	EW-5	ug/l	NSD			NSD		6.00	NSD		2.30
CHLOROFORM	GCW-1	ug/l	NSD			NSD		6.00	NSD		<83.00
CHLOROFORM	GCWWATEREFF	ug/l	Downward	-0.04418£	≥95	Exceedance	16.03	6.00	No Change	18.74	17.00
CHLOROFORM	GCWWATERIN	ug/l	Downward	-0.13449£	≥95	Exceedance	47.30	6.00	No Change	74.06	41.00
CHLOROFORM	GS-1	ug/l	No Trend⊥	0.00000£	93⊥	Compliance⊥	0.50	6.00	No Change⊥	1.10	<1.00
CHLOROFORM	GS-2	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance	0.89	6.00	No Change	0.99	0.90
CHLOROFORM	GS-3D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	6.00	No Change⊥	1.10	<1.00
CHLOROFORM	GS-3I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance	1.54	6.00	No Change	1.72	1.60
CHLOROFORM	GS-4	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	0.50	6.00	No Change⊥	1.10	<1.00
CHLOROFORM	MW-01	ug/l	No Trend⊥	0.00000£	89⊥	NSD		6.00	No Change⊥	11.00	<1.00
CHLOROFORM	MW-02BR	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	6.00	No Change⊥	1.10	<1.00
CHLOROFORM	MW-02D	ug/l	Downward	-0.07209£	≥95	Compliance	0.90	6.00	No Change	1.32	0.91
CHLOROFORM	MW-02S	ug/l	Downward	-0.04428£	≥95	Compliance	0.94	6.00	No Change	1.59	0.97
CHLOROFORM	MW-03	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		6.00	No Change⊥	11.00	<1.00
CHLOROFORM	MW-04D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		6.00	No Change⊥	11.00	<1.00
CHLOROFORM	MW-04S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		6.00	No Change⊥	11.00	<1.00
CHLOROFORM	MW-05D	ug/l	No Trend	0.00000£	51	Compliance	3.98	6.00	No Change	4.47	4.00
CHLOROFORM	MW-05S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	6.00	No Change⊥	1.10	<1.00
CHLOROFORM	MW-06	ug/l	No Trend⊥	0.00000£	NaN⊥	NSD		6.00	No Change⊥	11.00	<10.00

CONRAIL												
Analyte Name	Well ID	Units	Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)			
			Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)	
CHLOROFORM	MW-07D	ug/l	Downward	-0.08589£	≥95	Compliance	5.30	6.00	No Change	5.43	5.40	
CHLOROFORM	MW-07S	ug/l	No Trend⊥	0.00000£	63⊥	Compliance⊥	0.50	6.00	No Change⊥	1.10	<1.00	
CHLOROFORM	MW-08BR	ug/l	No Trend⊥	-0.05560£	≥95Ø⊥	Compliance⊥	0.50	6.00	No Change⊥	1.10	<1.00	
CHLOROFORM	MW-08D	ug/l	Downward	-0.02842£	≥95	Exceedance	14.84	6.00	No Change	18.60	14.00	
CHLOROFORM	MW-08S	ug/l	Downward	-0.05524£	≥95	Exceedance	9.77	6.00	No Change	19.57	9.30	
CHLOROFORM	MW-09	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	6.00	No Change⊥	1.10	<1.00	
CHLOROFORM	MW-09D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	2.50	6.00	Worse⊥	4.95	<5.00	
CHLOROFORM	MW-09S	ug/l	NSD			NSD		6.00	NSD		<1.00	
CHLOROFORM	MW-10D	ug/l	NSD			NSD		6.00	NSD		<1.00	
CHLOROFORM	MW-10S	ug/l	NSD			NSD		6.00	NSD		<1.00	
CHLOROFORM	MW-11D	ug/l	NSD			NSD		6.00	NSD		<10.00	
CHLOROFORM	MW-12	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	0.50	6.00	No Change⊥	1.10	<1.00	
CHLOROFORM	MW-14	ug/l	Upward	0.02328£	≥95	Compliance	1.48	6.00	No Change	1.69	0.54	
CHLOROFORM	MW-15	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	6.00	No Change⊥	1.10	<1.00	
CHLOROFORM	MW-23D	ug/l	No Trend⊥	0.03161£	≥95Ø⊥	Exceedance	9.90	6.00	No Change	19.25	9.30	
CHLOROFORM	MW-23S	ug/l	No Trend⊥	-0.00481£	≥95Ø⊥	Compliance	0.80	6.00	No Change	0.81	0.64	
CHLOROFORM	MW-24	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	6.00	No Change⊥	1.10	<1.00	
CHLOROFORM	MW-25	ug/l	No Trend⊥	0.00000£	81⊥	Exceedance	19.01	6.00	Worse	19.87	20.00	
CHLOROFORM	MW-26	ug/l	NSD			NSD		6.00	NSD		2.00	
CHLOROFORM	MW-27I	ug/l	NSD			NSD		6.00	NSD		<1.00	
CHLOROFORM	MW-29I	ug/l	NSD			NSD		6.00	NSD		<1.00	
CHLOROFORM	MW-30BR	ug/l	NSD			NSD		6.00	NSD		<1.00	
CHLOROFORM	MW-30D	ug/l	NSD			NSD		6.00	NSD		<1.00	
CHLOROFORM	MW-30I	ug/l	NSD			NSD		6.00	NSD		<1.00	
CHLOROFORM	MW-30S	ug/l	NSD			NSD		6.00	NSD		<10.00	

CONRAIL												
			Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)			
Analyte Name	Well ID	Units	Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)	
CHLOROFORM	MW-31I	ug/l	NSD			NSD		6.00	NSD		<1.00	
CHLOROFORM	MW-31S	ug/l	NSD			NSD		6.00	NSD		<1.00	
CHLOROFORM	MW-33I	ug/l	NSD			NSD		6.00	NSD		0.24	
CHLOROFORM	MW-33S	ug/l	NSD			NSD		6.00	NSD		<1.00	
CHLOROFORM	MW-34I	ug/l	No Trend	0.00000£	61	Compliance	2.26	6.00	No Change	3.08	1.60	
CHLOROFORM	MW-36I	ug/l	NSD			NSD		6.00	NSD		<20.00	
CHLOROFORM	MW-37D	ug/l	No Trend	0.02526£	87	NSD		6.00	Better	14.30	<14.00	
CHLOROFORM	MW-37S	ug/l	No Trend⊥	0.00000£	90⊥	NSD		6.00	No Change⊥	11.00	1.30	
CHLOROFORM	MW-38D	ug/l	Downward	-0.09708£	≥95	Exceedance	41.09	6.00	No Change	70.65	15.00	
CHLOROFORM	MW-38S	ug/l	No Trend	0.00000£	59	Exceedance	17.54	6.00	No Change	22.13	15.00	
CHLOROFORM	MW-3D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	6.00	No Change⊥	1.10	<1.00	
CHLOROFORM	MW-3I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	1.00	6.00	Worse⊥	1.93	<2.00	
CHLOROFORM	MW-40	ug/l	NSD			NSD		6.00	NSD		1.00	
CHLOROFORM	MW-41	ug/l	No Trend⊥	0.00000£	83⊥	Compliance⊥	1.83	6.00	No Change⊥	3.63	0.31	
CHLOROFORM	MW-42I	ug/l	Downward	-0.02444£	≥95	Compliance	5.30	6.00	No Change	5.34	4.70	
CHLOROFORM	MW-43BR	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	1.30	6.00	NR⊥	1.30	1.30	
CHLOROFORM	MW-43S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		6.00	No Change⊥	11.00	<1.00	
CHLOROFORM	MW-44D	ug/l	No Trend	-0.05339£	≥95Ø	Exceedance	12.68	6.00	No Change	15.13	11.00	
CHLOROFORM	MW-45	ug/l	NSD			NSD		6.00	NSD		10.00	
CHLOROFORM	MW-46S	ug/l	NSD			NSD		6.00	NSD		600.00	
CHLOROFORM	MW-47	ug/l	NSD			NSD		6.00	NSD		<50.00	
CHLOROFORM	MW-50	ug/l	No Trend	0.03039£	75	Exceedance	8.58	6.00	No Change	8.54	2.50	
CHLOROFORM	MW-51D	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	0.50	6.00	No Change⊥	1.10	<1.00	
CHLOROFORM	MW-51I	ug/l	No Trend⊥	0.00000£	78⊥	Compliance⊥	0.50	6.00	No Change⊥	1.10	<1.00	
CHLOROFORM	MW-53	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	6.00	No Change⊥	1.10	<1.00	

CONRAIL												
Analyte Name	Well ID	Units	Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
			Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
CHLOROFORM	MW-54	ug/l	NSD			NSD		6.00	NSD		<2.00
CHLOROFORM	MW-55	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	6.00	No Change⊥	1.10	<1.00
CHLOROFORM	MW-56D	ug/l	Downward	-0.15252£	≥95	Exceedance	21.17	6.00	No Change	25.80	14.00
CHLOROFORM	MW-56I	ug/l	Downward	-0.07033£	≥95	Exceedance	21.87	6.00	No Change	22.68	16.00
CHLOROFORM	MW-56S	ug/l	Downward	-0.04543£	≥95	Exceedance	17.36	6.00	No Change	19.06	16.00
CHLOROFORM	NE-26D	ug/l	NSD			NSD		6.00	NSD		1.80
CHLOROFORM	NE-26I	ug/l	NSD			NSD		6.00	NSD		<20.00
CHLOROFORM	NE-26S	ug/l	NSD			NSD		6.00	NSD		<59.00
CHLOROFORM	NE-50D	ug/l	NSD			NSD		6.00	NSD		0.33
CHLOROFORM	NE-50I	ug/l	NSD			NSD		6.00	NSD		<2.00
CHLOROFORM	NE-50S	ug/l	NSD			NSD		6.00	NSD		<1.00
CHLOROFORM	NE-80D	ug/l	NSD			NSD		6.00	NSD		0.15
CHLOROFORM	NE-80I	ug/l	NSD			NSD		6.00	NSD		1.30
CHLOROFORM	NE-80S	ug/l	NSD			NSD		6.00	NSD		<1.00
CHLOROFORM	OW1-D	ug/l	NSD			NSD		6.00	NSD		<1.00
CHLOROFORM	OW1-I	ug/l	NSD			NSD		6.00	NSD		<1.00
CHLOROFORM	OW1-S	ug/l	NSD			NSD		6.00	NSD		<1.00
CHLOROFORM	OW2-2D	ug/l	NSD			NSD		6.00	NSD		<1.00
CHLOROFORM	OW2-2I	ug/l	NSD			NSD		6.00	NSD		<1.00
CHLOROFORM	OW2-2S	ug/l	NSD			NSD		6.00	NSD		0.77
CHLOROFORM	OW2-3D	ug/l	NSD			NSD		6.00	NSD		<1.00
CHLOROFORM	OW2-3S	ug/l	NSD			NSD		6.00	NSD		6.60
CHLOROFORM	OW3-1D	ug/l	NSD			NSD		6.00	NSD		<1.00
CHLOROFORM	OW3-1I	ug/l	NSD			NSD		6.00	NSD		<1.00
CHLOROFORM	OW4-1D	ug/l	NSD			NSD		6.00	NSD		<1.00

CONRAIL											
			Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
Analyte Name	Well ID	Units	Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
CHLOROFORM	OW4-1I	ug/l	NSD			NSD		6.00	NSD		84.00
CHLOROFORM	OW4-1S	ug/l	NSD			NSD		6.00	NSD		1400.00
CHLOROFORM	OW5-D	ug/l	NSD			NSD		6.00	NSD		0.63
CHLOROFORM	OW5-I	ug/l	NSD			NSD		6.00	NSD		14.00
CHLOROFORM	OW5-S	ug/l	NSD			NSD		6.00	NSD		1.20
CHLOROFORM	RAW-01D	ug/l	No Trend	-0.01853£	87	Compliance⊥	1.40	6.00	No Change	1.83	0.49
CHLOROFORM	RAW-01I	ug/l	Downward	-0.15049£	≥95	Exceedance	1912.98	6.00	No Change	2050.75	1200.00
CHLOROFORM	RAW-01S	ug/l	No Trend⊥	0.00000£	50⊥	Compliance⊥	0.93	6.00	No Change⊥	1.10	<1.00
CHLOROFORM	RAW-02D	ug/l	No Trend⊥	0.00000£	45⊥	Compliance⊥	0.50	6.00	No Change⊥	1.10	<1.00
CHLOROFORM	RAW-02I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	6.00	No Change⊥	1.10	<1.00
CHLOROFORM	RAW-02S	ug/l	No Trend⊥	0.00000£	45⊥	Compliance⊥	0.50	6.00	No Change⊥	1.10	<1.00
CHLOROFORM	RMW-02D	ug/l	No Trend⊥	0.00000£	86⊥	Compliance⊥	0.50	6.00	No Change⊥	1.10	<1.00
CHLOROFORM	RMW-02S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	6.00	No Change⊥	1.10	<1.00
CHLOROFORM	RYWATER EFF	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	2.50	6.00	No Change⊥	5.50	<5.00
CHLOROFORM	RYWATERIN	ug/l	No Trend	-0.01103£	90	Exceedance	48.29	6.00	No Change	54.82	40.00
CHLOROFORM	W07	ug/l	NSD			NSD		6.00	NSD		120.00
CHLOROFORM	W08	ug/l	NSD			NSD		6.00	NSD		140.00
CHLOROFORM	W09	ug/l	NSD			NSD		6.00	NSD		40.00
TRICHLOROETHYLENE (TCE)	BMW-01	ug/l	NSD			NSD		5.00	NSD		<0.20
TRICHLOROETHYLENE (TCE)	BMW-02	ug/l	NSD			NSD		5.00	NSD		<0.20
TRICHLOROETHYLENE (TCE)	BMW-03	ug/l	No Trend	-0.10499£	82	NSD		5.00	No Change	52.87	1.40
TRICHLOROETHYLENE (TCE)	BMW-04D	ug/l	NSD			NSD		5.00	NSD		<0.20
TRICHLOROETHYLENE (TCE)	BMW-04S	ug/l	NSD			NSD		5.00	NSD		0.30
TRICHLOROETHYLENE (TCE)	BMW-05D	ug/l	NSD			NSD		5.00	NSD		<0.20

CONRAIL											
			Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
Analyte Name	Well ID	Units	Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
TRICHLOROETHYLENE (TCE)	BMW-05S	ug/l	NSD			NSD		5.00	NSD		<0.20
TRICHLOROETHYLENE (TCE)	BMW-06	ug/l	NSD			NSD		5.00	NSD		<50.00
TRICHLOROETHYLENE (TCE)	BMW-06D	ug/l	NSD			NSD		5.00	NSD		<33.00
TRICHLOROETHYLENE (TCE)	BMW-06S	ug/l	NSD			NSD		5.00	NSD		<1.00
TRICHLOROETHYLENE (TCE)	BMW-07	ug/l	NSD			NSD		5.00	NSD		400.00
TRICHLOROETHYLENE (TCE)	BMW-07D	ug/l	NSD			NSD		5.00	NSD		4.30
TRICHLOROETHYLENE (TCE)	BMW-07S	ug/l	NSD			NSD		5.00	NSD		31.00
TRICHLOROETHYLENE (TCE)	BMW-08	ug/l	NSD			NSD		5.00	NSD		20.00
TRICHLOROETHYLENE (TCE)	BMW-08D	ug/l	NSD			NSD		5.00	NSD		130.00
TRICHLOROETHYLENE (TCE)	BMW-08S	ug/l	NSD			NSD		5.00	NSD		19.00
TRICHLOROETHYLENE (TCE)	BMW-09	ug/l	NSD			NSD		5.00	NSD		<1.00
TRICHLOROETHYLENE (TCE)	BMW-09D	ug/l	NSD			NSD		5.00	NSD		<1.00
TRICHLOROETHYLENE (TCE)	BMW-09S	ug/l	NSD			NSD		5.00	NSD		<1.00
TRICHLOROETHYLENE (TCE)	BMW-10	ug/l	No Trend⊥	-0.06046£	72⊥	NSD		5.00	No Change⊥	30.00	<1.00
TRICHLOROETHYLENE (TCE)	BMW-10D	ug/l	NSD			NSD		5.00	NSD		0.20
TRICHLOROETHYLENE (TCE)	BMW-10S	ug/l	NSD			NSD		5.00	NSD		<0.20
TRICHLOROETHYLENE (TCE)	DSMW-01	ug/l	No Trend	0.00000£	85	Exceedance	123.77	5.00	No Change	141.99	100.00
TRICHLOROETHYLENE (TCE)	DSMW-02	ug/l	No Trend	-0.09468£	87	Exceedance	24.33	5.00	No Change	30.42	12.00
TRICHLOROETHYLENE (TCE)	DSMW-03	ug/l	Downward	-0.10447£	≥95	Exceedance	10.77	5.00	No Change	35.74	7.90
TRICHLOROETHYLENE (TCE)	DSMW-04	ug/l	Downward	-0.11883£	≥95	NSD		5.00	No Change	56.77	33.00
TRICHLOROETHYLENE (TCE)	DSMW-04D	ug/l	Downward	-0.48495£	≥95	Exceedance	9.41	5.00	No Change	27.74	7.50
TRICHLOROETHYLENE (TCE)	DSMW-04I	ug/l	No Trend	-0.03565£	58	Exceedance	25.79	5.00	No Change	33.20	18.00
TRICHLOROETHYLENE (TCE)	DSMW-04S	ug/l	No Trend	-0.02780£	90	Exceedance	33.73	5.00	No Change	39.35	31.00
TRICHLOROETHYLENE (TCE)	DSMW-07D	ug/l	Downward	-0.11279£	≥95	Exceedance	43.28	5.00	No Change	56.36	28.00
TRICHLOROETHYLENE (TCE)	DSMW-07I	ug/l	Upward	0.06608£	≥95	Exceedance	37.46	5.00	No Change	39.14	27.00

CONRAIL

Analyte Name	Well ID	Units	Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
			Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
TRICHLOROETHYLENE (TCE)	DSMW-07S	ug/l	No Trend	0.29267£	92	Exceedance	90.63	5.00	No Change	110.69	74.00
TRICHLOROETHYLENE (TCE)	DSMW-08D	ug/l	Downward	-0.09160£	≥95	Exceedance	137.31	5.00	No Change	175.52	110.00
TRICHLOROETHYLENE (TCE)	DSMW-08I	ug/l	No Trend	0.01945£	88	Exceedance	760.30	5.00	No Change	820.53	700.00
TRICHLOROETHYLENE (TCE)	DSMW-08S	ug/l	No Trend	-0.08243£	≥95Ø	Exceedance	36.57	5.00	No Change	38.80	23.00
TRICHLOROETHYLENE (TCE)	DSMW-09D	ug/l	Downward	-0.42489£	≥95	Exceedance	56.09	5.00	No Change	66.68	29.00
TRICHLOROETHYLENE (TCE)	DSMW-09I	ug/l	Upward	0.18281£	≥95	Exceedance	855.27	5.00	No Change	940.39	720.00
TRICHLOROETHYLENE (TCE)	DSMW-09S	ug/l	No Trend	-0.05131£	58	Exceedance	92.87	5.00	No Change	94.91	83.00
TRICHLOROETHYLENE (TCE)	DSMW-10D	ug/l	No Trend	0.00000£	50	Exceedance	646.40	5.00	No Change	827.79	470.00
TRICHLOROETHYLENE (TCE)	DSMW-10I	ug/l	No Trend	0.02157£	60	Exceedance	2835.91	5.00	No Change	3405.01	2300.00
TRICHLOROETHYLENE (TCE)	DSMW-10S	ug/l	No Trend	0.13704£	92	Compliance	1.26	5.00	No Change	1.61	0.98
TRICHLOROETHYLENE (TCE)	E05	ug/l	NSD			NSD		5.00	NSD		560.00
TRICHLOROETHYLENE (TCE)	E09	ug/l	NSD			NSD		5.00	NSD		71.00
TRICHLOROETHYLENE (TCE)	E11	ug/l	NSD			NSD		5.00	NSD		79.00
TRICHLOROETHYLENE (TCE)	E12	ug/l	NSD			NSD		5.00	NSD		<4.70
TRICHLOROETHYLENE (TCE)	EW-1	ug/l	NSD			NSD		5.00	NSD		230.00
TRICHLOROETHYLENE (TCE)	EW-2	ug/l	Downward	-0.06851£	≥95	Exceedance	228.59	5.00	No Change	258.01	230.00
TRICHLOROETHYLENE (TCE)	EW-3	ug/l	No Trend	-0.02321£	≥95Ø	Exceedance	190.15	5.00	No Change	204.54	160.00
TRICHLOROETHYLENE (TCE)	EW-4	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance	2.98	5.00	No Change	3.40	2.00
TRICHLOROETHYLENE (TCE)	EW-5	ug/l	NSD			NSD		5.00	NSD		21.00
TRICHLOROETHYLENE (TCE)	GCW-1	ug/l	NSD			NSD		5.00	NSD		2700.00
TRICHLOROETHYLENE (TCE)	GCWWATEREFF	ug/l	No Trend⊥	0.08533£	≥95Ø⊥	Exceedance	9.22	5.00	No Change	13.51	9.80
TRICHLOROETHYLENE (TCE)	GCWWATERIN	ug/l	Upward	0.86300£	≥95	Exceedance	45.46	5.00	No Change	87.44	37.00
TRICHLOROETHYLENE (TCE)	GS-1	ug/l	Downward	-0.32074£	≥95	Exceedance	39.61	5.00	No Change	62.72	38.00
TRICHLOROETHYLENE (TCE)	GS-2	ug/l	Downward	-0.21614£	≥95	Exceedance	616.75	5.00	No Change	810.02	250.00

CONRAIL												
Analyte Name	Well ID	Units	Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
			Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
TRICHLOROETHYLENE (TCE)	GS-3D	ug/l	Downward	-0.23806£	≥95	Compliance	3.77	5.00	No Change	4.53	3.40
TRICHLOROETHYLENE (TCE)	GS-3I	ug/l	Downward	-0.28197£	≥95	Exceedance	61.11	5.00	No Change	79.24	41.00
TRICHLOROETHYLENE (TCE)	GS-4	ug/l	Upward	0.28286£	≥95	Exceedance	23.91	5.00	No Change	30.72	23.00
TRICHLOROETHYLENE (TCE)	MW-01	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		5.00	No Change⊥	11.00	<1.00
TRICHLOROETHYLENE (TCE)	MW-02BR	ug/l	No Trend	-0.00491£	71	Exceedance	37.52	5.00	No Change	42.80	37.00
TRICHLOROETHYLENE (TCE)	MW-02D	ug/l	Downward	-0.21626£	≥95	Compliance⊥	0.50	5.00	No Change⊥	72.00	<1.00
TRICHLOROETHYLENE (TCE)	MW-02S	ug/l	Downward	-0.15317£	≥95	Compliance	0.32	5.00	No Change	2.33	0.30
TRICHLOROETHYLENE (TCE)	MW-03	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		5.00	No Change⊥	11.00	<1.00
TRICHLOROETHYLENE (TCE)	MW-04D	ug/l	No Trend⊥	0.00000£	50⊥	NSD		5.00	No Change⊥	11.00	<1.00
TRICHLOROETHYLENE (TCE)	MW-04S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		5.00	No Change⊥	11.00	<1.00
TRICHLOROETHYLENE (TCE)	MW-05D	ug/l	Upward	0.03274£	≥95	Exceedance	18.76	5.00	No Change	19.43	15.00
TRICHLOROETHYLENE (TCE)	MW-05S	ug/l	No Trend⊥	0.00000£	73⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TRICHLOROETHYLENE (TCE)	MW-06	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		5.00	No Change⊥	11.00	<10.00
TRICHLOROETHYLENE (TCE)	MW-07D	ug/l	Downward	-0.04311£	≥95	Exceedance	803.76	5.00	No Change	827.41	610.00
TRICHLOROETHYLENE (TCE)	MW-07S	ug/l	No Trend⊥	0.00000£	66⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TRICHLOROETHYLENE (TCE)	MW-08BR	ug/l	No Trend	-0.03547£	≥95Ø	Compliance	2.26	5.00	No Change	2.31	1.40
TRICHLOROETHYLENE (TCE)	MW-08D	ug/l	Downward	-0.12041£	≥95	Exceedance	12.38	5.00	No Change	15.09	10.00
TRICHLOROETHYLENE (TCE)	MW-08S	ug/l	Downward	-0.11138£	≥95	Exceedance	26.74	5.00	No Change	27.07	8.80
TRICHLOROETHYLENE (TCE)	MW-09	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TRICHLOROETHYLENE (TCE)	MW-09D	ug/l	Downward	-0.03503£	≥95	Exceedance	1317.94	5.00	No Change	1510.21	1300.00
TRICHLOROETHYLENE (TCE)	MW-09S	ug/l	NSD			NSD		5.00	NSD		<1.00
TRICHLOROETHYLENE (TCE)	MW-10D	ug/l	No Trend⊥	0.00000£	40⊥	NSD		5.00	No Change⊥	11.00	<1.00
TRICHLOROETHYLENE (TCE)	MW-10S	ug/l	No Trend⊥	0.00000£	40⊥	NSD		5.00	No Change⊥	11.00	<1.00
TRICHLOROETHYLENE (TCE)	MW-11D	ug/l	No Trend⊥	0.00000£	37⊥	NSD		5.00	No Change⊥	12.00	<10.00
TRICHLOROETHYLENE (TCE)	MW-11S	ug/l	NSD			NSD		5.00	NSD		<10.00

CONRAIL											
			Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
Analyte Name	Well ID	Units	Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
TRICHLOROETHYLENE (TCE)	MW-12	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TRICHLOROETHYLENE (TCE)	MW-13D	ug/l	NSD			NSD		5.00	NSD		<10.00
TRICHLOROETHYLENE (TCE)	MW-13S	ug/l	NSD			NSD		5.00	NSD		<10.00
TRICHLOROETHYLENE (TCE)	MW-14	ug/l	No Trend	0.02046£	81	Exceedance	11.37	5.00	No Change	12.93	3.50
TRICHLOROETHYLENE (TCE)	MW-15	ug/l	No Trend⊥	0.00000£	81⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TRICHLOROETHYLENE (TCE)	MW-16	ug/l	NSD			NSD		5.00	NSD		<10.00
TRICHLOROETHYLENE (TCE)	MW-17	ug/l	NSD			NSD		5.00	NSD		<1.00
TRICHLOROETHYLENE (TCE)	MW-18	ug/l	NSD			NSD		5.00	NSD		<10.00
TRICHLOROETHYLENE (TCE)	MW-19D	ug/l	NSD			NSD		5.00	NSD		<10.00
TRICHLOROETHYLENE (TCE)	MW-19S	ug/l	NSD			NSD		5.00	NSD		<10.00
TRICHLOROETHYLENE (TCE)	MW-20D	ug/l	No Trend⊥	0.00000£	50⊥	NSD		5.00	No Change⊥	4.00	<1.00
TRICHLOROETHYLENE (TCE)	MW-20S	ug/l	No Trend	0.10245£	72	NSD		5.00	No Change	19.64	8.00
TRICHLOROETHYLENE (TCE)	MW-21D	ug/l	No Trend⊥	0.00000£	37⊥	NSD		5.00	No Change⊥	6.60	<1.00
TRICHLOROETHYLENE (TCE)	MW-21S	ug/l	No Trend⊥	0.00000£	37⊥	NSD		5.00	No Change⊥	6.60	<1.00
TRICHLOROETHYLENE (TCE)	MW-23D	ug/l	No Trend	0.03118£	90	Exceedance	67.08	5.00	No Change	74.46	49.00
TRICHLOROETHYLENE (TCE)	MW-23S	ug/l	Downward	-0.14291£	≥95	Compliance	1.33	5.00	No Change	1.60	0.74
TRICHLOROETHYLENE (TCE)	MW-24	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TRICHLOROETHYLENE (TCE)	MW-25	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TRICHLOROETHYLENE (TCE)	MW-26	ug/l	NSD			NSD		5.00	NSD		<10.00
TRICHLOROETHYLENE (TCE)	MW-27I	ug/l	NSD			NSD		5.00	NSD		<1.00
TRICHLOROETHYLENE (TCE)	MW-27S	ug/l	NSD			NSD		5.00	NSD		<10.00
TRICHLOROETHYLENE (TCE)	MW-28I	ug/l	NSD			NSD		5.00	NSD		<10.00
TRICHLOROETHYLENE (TCE)	MW-28S	ug/l	NSD			NSD		5.00	NSD		<10.00
TRICHLOROETHYLENE (TCE)	MW-29I	ug/l	NSD			NSD		5.00	NSD		<1.00
TRICHLOROETHYLENE (TCE)	MW-29S	ug/l	NSD			NSD		5.00	NSD		<10.00

CONRAIL												
			Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
Analyte Name	Well ID	Units	Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
TRICHLOROETHYLENE (TCE)	MW-30BR	ug/l	NSD			NSD		5.00	NSD		<1.00
TRICHLOROETHYLENE (TCE)	MW-30D	ug/l	NSD			NSD		5.00	NSD		<1.00
TRICHLOROETHYLENE (TCE)	MW-30I	ug/l	No Trend	-0.12204£	83	NSD		5.00	No Change	13704.17	450.00
TRICHLOROETHYLENE (TCE)	MW-30S	ug/l	NSD			NSD		5.00	NSD		100.00
TRICHLOROETHYLENE (TCE)	MW-31I	ug/l	No Trend⊥	0.00000£	37⊥	NSD		5.00	No Change⊥	6.60	<1.00
TRICHLOROETHYLENE (TCE)	MW-31S	ug/l	NSD			NSD		5.00	NSD		<1.00
TRICHLOROETHYLENE (TCE)	MW-32I	ug/l	NSD			NSD		5.00	NSD		59.00
TRICHLOROETHYLENE (TCE)	MW-32S	ug/l	NSD			NSD		5.00	NSD		<10.00
TRICHLOROETHYLENE (TCE)	MW-33I	ug/l	No Trend⊥	0.00000£	37⊥	NSD		5.00	No Change⊥	6.60	<1.00
TRICHLOROETHYLENE (TCE)	MW-33S	ug/l	NSD			NSD		5.00	NSD		<1.00
TRICHLOROETHYLENE (TCE)	MW-34I	ug/l	Downward	-0.42140£	≥95	Compliance	1.42	5.00	No Change	3.02	0.93
TRICHLOROETHYLENE (TCE)	MW-35S	ug/l	NSD			NSD		5.00	NSD		3.00
TRICHLOROETHYLENE (TCE)	MW-36I	ug/l	NSD			NSD		5.00	NSD		400.00
TRICHLOROETHYLENE (TCE)	MW-37D	ug/l	No Trend	0.01505£	82	NSD		5.00	No Change	594.38	460.00
TRICHLOROETHYLENE (TCE)	MW-37S	ug/l	No Trend	0.05862£	78	NSD		5.00	No Change	59.16	19.00
TRICHLOROETHYLENE (TCE)	MW-38D	ug/l	No Trend	0.00000£	81	Exceedance	25.60	5.00	No Change	32.33	17.00
TRICHLOROETHYLENE (TCE)	MW-38S	ug/l	Downward	-0.12394£	≥95	Exceedance	8.68	5.00	No Change	11.05	8.00
TRICHLOROETHYLENE (TCE)	MW-39S	ug/l	NSD			NSD		5.00	NSD		<10.00
TRICHLOROETHYLENE (TCE)	MW-3D	ug/l	Downward	-0.08918£	≥95	Exceedance	53.60	5.00	No Change	177.99	0.61
TRICHLOROETHYLENE (TCE)	MW-3I	ug/l	No Trend	0.00000£	50	Exceedance	1786.76	5.00	No Change	1826.27	880.00
TRICHLOROETHYLENE (TCE)	MW-40	ug/l	NSD			NSD		5.00	NSD		0.50
TRICHLOROETHYLENE (TCE)	MW-41	ug/l	Downward	-0.11340£	≥95	Exceedance	1590.45	5.00	No Change	1837.70	380.00
TRICHLOROETHYLENE (TCE)	MW-42I	ug/l	Downward	-0.11422£	≥95	Compliance	0.92	5.00	No Change	1.12	0.71
TRICHLOROETHYLENE (TCE)	MW-43BR	ug/l	Downward	-0.15779£	≥95	Exceedance	25.63	5.00	Better	51.41	<1.00
TRICHLOROETHYLENE (TCE)	MW-43S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		5.00	No Change⊥	11.00	<1.00

CONRAIL											
			Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
Analyte Name	Well ID	Units	Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
TRICHLOROETHYLENE (TCE)	MW-44D	ug/l	No Trend	-0.03288£	≥95Ø	Exceedance	16.26	5.00	No Change	18.77	12.00
TRICHLOROETHYLENE (TCE)	MW-45	ug/l	NSD			NSD		5.00	NSD		2.00
TRICHLOROETHYLENE (TCE)	MW-46I	ug/l	NSD			NSD		5.00	NSD		26.00
TRICHLOROETHYLENE (TCE)	MW-46S	ug/l	NSD			NSD		5.00	NSD		1.00
TRICHLOROETHYLENE (TCE)	MW-47	ug/l	NSD			NSD		5.00	NSD		1300.00
TRICHLOROETHYLENE (TCE)	MW-48	ug/l	NSD			NSD		5.00	NSD		<1.00
TRICHLOROETHYLENE (TCE)	MW-49BR	ug/l	NSD			NSD		5.00	NSD		20.00
TRICHLOROETHYLENE (TCE)	MW-49D	ug/l	NSD			NSD		5.00	NSD		8.00
TRICHLOROETHYLENE (TCE)	MW-50	ug/l	No Trend	-0.01900£	58	Exceedance	37.04	5.00	No Change	42.00	29.00
TRICHLOROETHYLENE (TCE)	MW-51D	ug/l	No Trend	-0.17173£	89	Compliance	1.29	5.00	No Change	50.60	1.10
TRICHLOROETHYLENE (TCE)	MW-51I	ug/l	Downward	-0.18502£	≥95	Exceedance	21.99	5.00	No Change	68.47	13.00
TRICHLOROETHYLENE (TCE)	MW-53	ug/l	Downward	-0.07060£	≥95	Compliance	0.52	5.00	No Change	0.60	0.43
TRICHLOROETHYLENE (TCE)	MW-54	ug/l	NSD			NSD		5.00	NSD		180.00
TRICHLOROETHYLENE (TCE)	MW-55	ug/l	No Trend	0.29263£	≥95Ø	Exceedance	16.38	5.00	No Change	21.73	14.00
TRICHLOROETHYLENE (TCE)	MW-56D	ug/l	Downward	-0.19287£	≥95	Exceedance	37.64	5.00	No Change	42.81	21.00
TRICHLOROETHYLENE (TCE)	MW-56I	ug/l	Downward	-0.20016£	≥95	Exceedance	18.18	5.00	No Change	27.63	17.00
TRICHLOROETHYLENE (TCE)	MW-56S	ug/l	Downward	-0.16818£	≥95	Exceedance	14.81	5.00	No Change	23.94	12.00
TRICHLOROETHYLENE (TCE)	NE-26D	ug/l	NSD			NSD		5.00	NSD		14.00
TRICHLOROETHYLENE (TCE)	NE-26I	ug/l	NSD			NSD		5.00	NSD		680.00
TRICHLOROETHYLENE (TCE)	NE-26S	ug/l	NSD			NSD		5.00	NSD		1600.00
TRICHLOROETHYLENE (TCE)	NE-50D	ug/l	NSD			NSD		5.00	NSD		1.80
TRICHLOROETHYLENE (TCE)	NE-50I	ug/l	NSD			NSD		5.00	NSD		72.00
TRICHLOROETHYLENE (TCE)	NE-50S	ug/l	NSD			NSD		5.00	NSD		1.90
TRICHLOROETHYLENE (TCE)	NE-80D	ug/l	NSD			NSD		5.00	NSD		0.16
TRICHLOROETHYLENE (TCE)	NE-80I	ug/l	NSD			NSD		5.00	NSD		<1.00

CONRAIL											
			Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
Analyte Name	Well ID	Units	Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
TRICHLOROETHYLENE (TCE)	NE-80S	ug/l	NSD			NSD		5.00	NSD		<1.00
TRICHLOROETHYLENE (TCE)	OW1-D	ug/l	NSD			NSD		5.00	NSD		59.00
TRICHLOROETHYLENE (TCE)	OW1-I	ug/l	NSD			NSD		5.00	NSD		18.00
TRICHLOROETHYLENE (TCE)	OW1-S	ug/l	NSD			NSD		5.00	NSD		110.00
TRICHLOROETHYLENE (TCE)	OW2-2D	ug/l	NSD			NSD		5.00	NSD		<1.00
TRICHLOROETHYLENE (TCE)	OW2-2I	ug/l	NSD			NSD		5.00	NSD		230.00
TRICHLOROETHYLENE (TCE)	OW2-2S	ug/l	NSD			NSD		5.00	NSD		560.00
TRICHLOROETHYLENE (TCE)	OW2-3D	ug/l	NSD			NSD		5.00	NSD		<1.00
TRICHLOROETHYLENE (TCE)	OW2-3S	ug/l	NSD			NSD		5.00	NSD		2.50
TRICHLOROETHYLENE (TCE)	OW3-1D	ug/l	NSD			NSD		5.00	NSD		16.00
TRICHLOROETHYLENE (TCE)	OW3-1I	ug/l	NSD			NSD		5.00	NSD		450.00
TRICHLOROETHYLENE (TCE)	OW4-1D	ug/l	NSD			NSD		5.00	NSD		<1.00
TRICHLOROETHYLENE (TCE)	OW4-1I	ug/l	NSD			NSD		5.00	NSD		<1.00
TRICHLOROETHYLENE (TCE)	OW4-1S	ug/l	NSD			NSD		5.00	NSD		<5.00
TRICHLOROETHYLENE (TCE)	OW5-D	ug/l	NSD			NSD		5.00	NSD		<1.00
TRICHLOROETHYLENE (TCE)	OW5-I	ug/l	NSD			NSD		5.00	NSD		7.40
TRICHLOROETHYLENE (TCE)	OW5-S	ug/l	NSD			NSD		5.00	NSD		1.70
TRICHLOROETHYLENE (TCE)	PDPW-1	ug/l	NSD			NSD		5.00	NSD		<5.00
TRICHLOROETHYLENE (TCE)	RAW-01D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TRICHLOROETHYLENE (TCE)	RAW-01I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	3.20	5.00	No Change⊥	3.63	3.20
TRICHLOROETHYLENE (TCE)	RAW-01S	ug/l	No Trend⊥	0.00000£	45⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TRICHLOROETHYLENE (TCE)	RAW-02D	ug/l	No Trend⊥	0.00000£	45⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TRICHLOROETHYLENE (TCE)	RAW-02I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TRICHLOROETHYLENE (TCE)	RAW-02S	ug/l	No Trend⊥	0.00000£	45⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TRICHLOROETHYLENE (TCE)	RMW-01	ug/l	NSD			NSD		5.00	NSD		<0.20

CONRAIL												
Analyte Name	Well ID	Units	Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)			
			Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)	
TRICHLOROETHYLENE (TCE)	RMW-02D	ug/l	No Trend⊥	0.00000£	53⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
TRICHLOROETHYLENE (TCE)	RMW-02S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
TRICHLOROETHYLENE (TCE)	RMW-03	ug/l	NSD			NSD		5.00	NSD		<0.20	
TRICHLOROETHYLENE (TCE)	RMW-04	ug/l	NSD			NSD		5.00	NSD		<0.20	
TRICHLOROETHYLENE (TCE)	RMW-05	ug/l	NSD			NSD		5.00	NSD		<0.20	
TRICHLOROETHYLENE (TCE)	RMW-06	ug/l	NSD			NSD		5.00	NSD		<0.20	
TRICHLOROETHYLENE (TCE)	RMW-07	ug/l	NSD			NSD		5.00	NSD		0.70	
TRICHLOROETHYLENE (TCE)	RYWATER EFF	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	2.50	5.00	No Change⊥	5.50	<5.00	
TRICHLOROETHYLENE (TCE)	RYWATERIN	ug/l	Downward	-0.18073£	≥95	Exceedance	136.64	5.00	No Change	150.47	110.00	
TRICHLOROETHYLENE (TCE)	W07	ug/l	NSD			NSD		5.00	NSD		29.00	
TRICHLOROETHYLENE (TCE)	W08	ug/l	NSD			NSD		5.00	NSD		150.00	
TRICHLOROETHYLENE (TCE)	W09	ug/l	NSD			NSD		5.00	NSD		38.00	
1,1-DICHLOROETHENE	BMW-03	ug/l	NSD			NSD		7.00	NSD		<1.00	
1,1-DICHLOROETHENE	BMW-06D	ug/l	NSD			NSD		7.00	NSD		<33.00	
1,1-DICHLOROETHENE	BMW-06S	ug/l	NSD			NSD		7.00	NSD		<1.00	
1,1-DICHLOROETHENE	BMW-07D	ug/l	NSD			NSD		7.00	NSD		<1.00	
1,1-DICHLOROETHENE	BMW-07S	ug/l	NSD			NSD		7.00	NSD		<1.00	
1,1-DICHLOROETHENE	BMW-09D	ug/l	NSD			NSD		7.00	NSD		<1.00	
1,1-DICHLOROETHENE	BMW-09S	ug/l	NSD			NSD		7.00	NSD		<1.00	
1,1-DICHLOROETHENE	BMW-10	ug/l	NSD			NSD		7.00	NSD		<1.00	
1,1-DICHLOROETHENE	DSMW-01	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00	
1,1-DICHLOROETHENE	DSMW-02	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00	
1,1-DICHLOROETHENE	DSMW-03	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00	
1,1-DICHLOROETHENE	DSMW-04	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		7.00	No Change⊥	31.90	<12.00	

CONRAIL												
			Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
Analyte Name	Well ID	Units	Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
1,1-DICHLOROETHENE	DSMW-04D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	DSMW-04I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	1.35	7.00	No Change⊥	4.40	<1.00
1,1-DICHLOROETHENE	DSMW-04S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	DSMW-07D	ug/l	No Trend⊥	0.00000£	67⊥	Compliance⊥	0.50	7.00	**Worse**	**0.37**	**<1.00**
1,1-DICHLOROETHENE	DSMW-07I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	2.38	7.00	No Change⊥	5.50	<2.00
1,1-DICHLOROETHENE	DSMW-07S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.63	7.00	No Change⊥	1.38	<1.00
1,1-DICHLOROETHENE	DSMW-08D	ug/l	No Trend⊥	-0.11187£	≥95Ø⊥	Compliance	0.49	7.00	**Worse**	**0.70**	**<1.00**
1,1-DICHLOROETHENE	DSMW-08I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.75	7.00	No Change⊥	2.20	<1.00
1,1-DICHLOROETHENE	DSMW-08S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	DSMW-09D	ug/l	No Trend⊥	0.00000£	71⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	DSMW-09I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	1.05	7.00	No Change⊥	2.59	<1.00
1,1-DICHLOROETHENE	DSMW-09S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	DSMW-10D	ug/l	Downward	-0.40075£	>95	Compliance	0.89	7.00	No Change	1.25	0.90
1,1-DICHLOROETHENE	DSMW-10I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	3.45	7.00	No Change⊥	9.13	<4.00
1,1-DICHLOROETHENE	DSMW-10S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	E05	ug/l	NSD			NSD		7.00	NSD		<18.00
1,1-DICHLOROETHENE	E09	ug/l	NSD			NSD		7.00	NSD		<2.00
1,1-DICHLOROETHENE	E11	ug/l	NSD			NSD		7.00	NSD		<14.00
1,1-DICHLOROETHENE	E12	ug/l	NSD			NSD		7.00	NSD		<4.70
1,1-DICHLOROETHENE	EW-1	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	EW-2	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	EW-3	ug/l	No Trend	-0.01338£	≥95Ø	Compliance	1.45	7.00	No Change	1.95	1.50
1,1-DICHLOROETHENE	EW-4	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance	0.57	7.00	No Change	0.86	0.44
1,1-DICHLOROETHENE	EW-5	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	GCW-1	ug/l	NSD			NSD		7.00	NSD		<83.00

CONRAIL												
Analyte Name	Well ID	Units	Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)			
			Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)	
1,1-DICHLOROETHENE	GCWWATEREFF	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	2.50	7.00	No Change⊥	5.50	<5.00	
1,1-DICHLOROETHENE	GCWWATERIN	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	2.50	7.00	No Change⊥	5.50	<5.00	
1,1-DICHLOROETHENE	GS-1	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00	
1,1-DICHLOROETHENE	GS-2	ug/l	No Trend⊥	0.00000£	93⊥	Compliance⊥	0.60	7.00	No Change⊥	1.49	<1.00	
1,1-DICHLOROETHENE	GS-3D	ug/l	No Trend	0.03037£	≥95Ø	Compliance	3.32	7.00	No Change	3.74	2.90	
1,1-DICHLOROETHENE	GS-3I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00	
1,1-DICHLOROETHENE	GS-4	ug/l	No Trend⊥	0.00000£	76⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	0.20	
1,1-DICHLOROETHENE	MW-01	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		7.00	No Change⊥	11.00	<1.00	
1,1-DICHLOROETHENE	MW-02BR	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00	
1,1-DICHLOROETHENE	MW-02D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00	
1,1-DICHLOROETHENE	MW-02S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00	
1,1-DICHLOROETHENE	MW-03	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		7.00	No Change⊥	11.00	<1.00	
1,1-DICHLOROETHENE	MW-04D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		7.00	No Change⊥	11.00	<1.00	
1,1-DICHLOROETHENE	MW-04S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		7.00	No Change⊥	11.00	<1.00	
1,1-DICHLOROETHENE	MW-05D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00	
1,1-DICHLOROETHENE	MW-05S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00	
1,1-DICHLOROETHENE	MW-06	ug/l	No Trend⊥	0.00000£	92⊥	NSD		7.00	No Change⊥	11.00	<10.00	
1,1-DICHLOROETHENE	MW-07D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	1.00	7.00	No Change⊥	2.48	<1.00	
1,1-DICHLOROETHENE	MW-07S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00	
1,1-DICHLOROETHENE	MW-08BR	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00	
1,1-DICHLOROETHENE	MW-08D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00	
1,1-DICHLOROETHENE	MW-08S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00	
1,1-DICHLOROETHENE	MW-09	ug/l	Downward	-0.08801£	≥95	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00	
1,1-DICHLOROETHENE	MW-09D	ug/l	No Trend⊥	0.00000£	87⊥	Compliance⊥	2.50	7.00	No Change⊥	5.50	<5.00	

CONRAIL												
			Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
Analyte Name	Well ID	Units	Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
1,1-DICHLOROETHENE	MW-09S	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	MW-10D	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	MW-10S	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	MW-11D	ug/l	NSD			NSD		7.00	NSD		<10.00
1,1-DICHLOROETHENE	MW-12	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	MW-14	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	MW-15	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	MW-23D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	MW-23S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	MW-24	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	MW-25	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	MW-27I	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	MW-29I	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	MW-30BR	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	MW-30D	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	MW-30I	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	MW-30S	ug/l	NSD			NSD		7.00	NSD		<10.00
1,1-DICHLOROETHENE	MW-31I	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	MW-31S	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	MW-33I	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	MW-33S	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	MW-34I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	MW-36I	ug/l	NSD			NSD		7.00	NSD		<20.00
1,1-DICHLOROETHENE	MW-37D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		7.00	No Change⊥	36.30	<14.00
1,1-DICHLOROETHENE	MW-37S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		7.00	No Change⊥	11.00	<1.00

CONRAIL												
			Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
Analyte Name	Well ID	Units	Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
1,1-DICHLOROETHENE	MW-38D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	0.37
1,1-DICHLOROETHENE	MW-38S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	MW-3D	ug/l	No Trend⊥	-0.04074£	≥95Ø⊥	Compliance	0.71	7.00	No Change	0.82	0.54
1,1-DICHLOROETHENE	MW-3I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	2.08	7.00	No Change	1.29	0.79
1,1-DICHLOROETHENE	MW-41	ug/l	No Trend⊥	0.00000£	72⊥	Compliance⊥	1.25	7.00	No Change⊥	3.63	<1.00
1,1-DICHLOROETHENE	MW-42I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	MW-43BR	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	MW-43S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		7.00	No Change⊥	11.00	<1.00
1,1-DICHLOROETHENE	MW-44D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	MW-47	ug/l	NSD			NSD		7.00	NSD		<50.00
1,1-DICHLOROETHENE	MW-50	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	MW-51D	ug/l	Downward	-0.06442£	≥95	Compliance	0.49	7.00	No Change	2.14	0.37
1,1-DICHLOROETHENE	MW-51I	ug/l	Downward⊥	-0.04783£	≥95⊥	Compliance	0.98	7.00	Worse	0.98	1.00
1,1-DICHLOROETHENE	MW-53	ug/l	No Trend⊥	0.00000£	88⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	MW-54	ug/l	NSD			NSD		7.00	NSD		0.74
1,1-DICHLOROETHENE	MW-55	ug/l	No Trend⊥	0.00000£	70⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	MW-56D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	MW-56I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	MW-56S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	NE-26D	ug/l	NSD			NSD		7.00	NSD		1.90
1,1-DICHLOROETHENE	NE-26I	ug/l	NSD			NSD		7.00	NSD		<20.00
1,1-DICHLOROETHENE	NE-26S	ug/l	NSD			NSD		7.00	NSD		<59.00
1,1-DICHLOROETHENE	NE-50D	ug/l	NSD			NSD		7.00	NSD		1.20
1,1-DICHLOROETHENE	NE-50I	ug/l	NSD			NSD		7.00	NSD		<2.00
1,1-DICHLOROETHENE	NE-50S	ug/l	NSD			NSD		7.00	NSD		<1.00

CONRAIL											
			Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
Analyte Name	Well ID	Units	Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
1,1-DICHLOROETHENE	NE-80D	ug/l	NSD			NSD		7.00	NSD		0.33
1,1-DICHLOROETHENE	NE-80I	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	NE-80S	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	OW1-D	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	OW1-I	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	OW1-S	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	OW2-2D	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	OW2-2I	ug/l	NSD			NSD		7.00	NSD		0.19
1,1-DICHLOROETHENE	OW2-2S	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	OW2-3D	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	OW2-3S	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	OW3-1D	ug/l	NSD			NSD		7.00	NSD		2.70
1,1-DICHLOROETHENE	OW3-1I	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	OW4-1D	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	OW4-1I	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	OW4-1S	ug/l	NSD			NSD		7.00	NSD		<5.00
1,1-DICHLOROETHENE	OW5-D	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	OW5-I	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	OW5-S	ug/l	NSD			NSD		7.00	NSD		<1.00
1,1-DICHLOROETHENE	RAW-01D	ug/l	**Downward**	**-0.01892£**	**≥95**	**Compliance**	**0.57**	**7.00**	**Worse**	**0.71**	**<1.00**
1,1-DICHLOROETHENE	RAW-01I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	**Compliance⊥**	**2.00**	**7.00**	No Change⊥	4.21	<4.00
1,1-DICHLOROETHENE	RAW-01S	ug/l	No Trend⊥	0.00000£	45⊥	**Compliance⊥**	**0.50**	**7.00**	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	RAW-02D	ug/l	No Trend⊥	0.00000£	59⊥	**Compliance⊥**	**0.50**	**7.00**	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	RAW-02I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	**Compliance⊥**	**0.50**	**7.00**	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	RAW-02S	ug/l	No Trend⊥	0.00000£	45⊥	**Compliance⊥**	**0.50**	**7.00**	No Change⊥	1.10	<1.00

CONRAIL											
			Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
Analyte Name	Well ID	Units	Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
1,1-DICHLOROETHENE	RMW-02D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	RMW-02S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	7.00	No Change⊥	1.10	<1.00
1,1-DICHLOROETHENE	RYWATER EFF	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	2.50	7.00	No Change⊥	5.50	<5.00
1,1-DICHLOROETHENE	RYWATERI N	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Exceedance⊥	7.40	7.00	No Change⊥	7.40	<5.00
1,1-DICHLOROETHENE	W07	ug/l	NSD			NSD		7.00	NSD		<29.00
1,1-DICHLOROETHENE	W08	ug/l	NSD			NSD		7.00	NSD		<17.00
1,1-DICHLOROETHENE	W09	ug/l	NSD			NSD		7.00	NSD		<17.00
CIS-1,2-DICHLOROETHYLENE	BMW-03	ug/l	NSD			NSD		70.00	NSD		1.40
CIS-1,2-DICHLOROETHYLENE	BMW-06D	ug/l	NSD			NSD		70.00	NSD		<17.00
CIS-1,2-DICHLOROETHYLENE	BMW-06S	ug/l	NSD			NSD		70.00	NSD		<1.00
CIS-1,2-DICHLOROETHYLENE	BMW-07D	ug/l	NSD			NSD		70.00	NSD		<1.00
CIS-1,2-DICHLOROETHYLENE	BMW-07S	ug/l	NSD			NSD		70.00	NSD		<1.00
CIS-1,2-DICHLOROETHYLENE	BMW-09D	ug/l	NSD			NSD		70.00	NSD		<1.00
CIS-1,2-DICHLOROETHYLENE	BMW-09S	ug/l	NSD			NSD		70.00	NSD		<1.00
CIS-1,2-DICHLOROETHYLENE	BMW-10	ug/l	NSD			NSD		70.00	NSD		<1.00
CIS-1,2-DICHLOROETHYLENE	DSMW-01	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
CIS-1,2-DICHLOROETHYLENE	DSMW-02	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	0.35
CIS-1,2-DICHLOROETHYLENE	DSMW-03	ug/l	No Trend⊥	0.00000£	63⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
CIS-1,2-DICHLOROETHYLENE	DSMW-04	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		70.00	No Change⊥	31.90	<12.00
CIS-1,2-DICHLOROETHYLENE	DSMW-04D	ug/l	Downward	-0.12030£	≥95	Compliance	0.46	70.00	No Change	0.67	0.46
CIS-1,2-DICHLOROETHYLENE	DSMW-04I	ug/l	Downward	-0.53849£	≥95	Compliance	2.45	70.00	No Change	7.36	1.40
CIS-1,2-DICHLOROETHYLENE	DSMW-04S	ug/l	No Trend⊥	-0.31905£	≥95Ø⊥	Compliance	0.88	70.00	No Change	1.32	0.90
CIS-1,2-DICHLOROETHYLENE	DSMW-07D	ug/l	No Trend	-0.04820£	94	Compliance	1.54	70.00	No Change	1.65	1.50
CIS-1,2-DICHLOROETHYLENE	DSMW-07I	ug/l	Downward	-0.35795£	≥95	Compliance	4.91	70.00	No Change	7.30	4.70

CONRAIL												
			Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
Analyte Name	Well ID	Units	Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
CIS-1,2-DICHLOROETHYLENE	DSMW-07S	ug/l	No Trend⊥	-0.13639£	≥95Ø⊥	Compliance	1.51	70.00	No Change	1.34	0.68
CIS-1,2-DICHLOROETHYLENE	DSMW-08D	ug/l	Upward	0.06466£	≥95	Compliance	5.17	70.00	No Change	6.29	5.00
CIS-1,2-DICHLOROETHYLENE	DSMW-08I	ug/l	Downward	-0.15095£	≥95	Compliance	3.54	70.00	No Change	4.19	3.20
CIS-1,2-DICHLOROETHYLENE	DSMW-08S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
CIS-1,2-DICHLOROETHYLENE	DSMW-09D	ug/l	Downward	-0.19126£	≥95	Compliance	1.47	70.00	No Change	1.82	0.83
CIS-1,2-DICHLOROETHYLENE	DSMW-09I	ug/l	No Trend	0.00000£	50	Compliance	4.61	70.00	No Change	4.89	4.30
CIS-1,2-DICHLOROETHYLENE	DSMW-09S	ug/l	No Trend⊥	0.00000£	92⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	0.24
CIS-1,2-DICHLOROETHYLENE	DSMW-10D	ug/l	No Trend	0.02368£	76	Compliance	22.23	70.00	No Change	27.35	22.00
CIS-1,2-DICHLOROETHYLENE	DSMW-10I	ug/l	Downward	-0.22531£	≥95	Compliance	6.58	70.00	No Change	7.46	6.10
CIS-1,2-DICHLOROETHYLENE	DSMW-10S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
CIS-1,2-DICHLOROETHYLENE	E05	ug/l	NSD			NSD		70.00	NSD		<18.00
CIS-1,2-DICHLOROETHYLENE	E09	ug/l	NSD			NSD		70.00	NSD		1.30
CIS-1,2-DICHLOROETHYLENE	E11	ug/l	NSD			NSD		70.00	NSD		<14.00
CIS-1,2-DICHLOROETHYLENE	E12	ug/l	NSD			NSD		70.00	NSD		<4.70
CIS-1,2-DICHLOROETHYLENE	EW-1	ug/l	NSD			NSD		70.00	NSD		0.52
CIS-1,2-DICHLOROETHYLENE	EW-2	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance	0.78	70.00	No Change	1.26	0.73
CIS-1,2-DICHLOROETHYLENE	EW-3	ug/l	No Trend	0.01874£	93	Compliance	34.02	70.00	No Change	36.85	33.00
CIS-1,2-DICHLOROETHYLENE	EW-4	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.54	<1.00
CIS-1,2-DICHLOROETHYLENE	EW-5	ug/l	NSD			NSD		70.00	NSD		<1.00
CIS-1,2-DICHLOROETHYLENE	GCWWATEREFF	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	2.50	70.00	No Change⊥	5.50	<5.00
CIS-1,2-DICHLOROETHYLENE	GCWWATERIN	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	2.50	70.00	No Change⊥	5.50	<5.00
CIS-1,2-DICHLOROETHYLENE	GS-1	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
CIS-1,2-DICHLOROETHYLENE	GS-2	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance	2.93	70.00	No Change	4.37	1.60
CIS-1,2-DICHLOROETHYLENE	GS-3D	ug/l	Downward	-0.24042£	≥95	Compliance	0.53	70.00	No Change	0.65	0.52

CONRAIL												
Analyte Name	Well ID	Units	Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)			
			Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)	
CIS-1,2-DICHLOROETHYLENE	GS-3I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
CIS-1,2-DICHLOROETHYLENE	GS-4	ug/l	No Trend⊥	0.00000£	88⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	0.29	
CIS-1,2-DICHLOROETHYLENE	MW-01	ug/l	NSD			NSD		70.00	NSD		<1.00	
CIS-1,2-DICHLOROETHYLENE	MW-02BR	ug/l	No Trend⊥	0.00000£	45⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
CIS-1,2-DICHLOROETHYLENE	MW-02D	ug/l	No Trend⊥	0.00000£	76⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
CIS-1,2-DICHLOROETHYLENE	MW-02S	ug/l	No Trend⊥	0.00000£	45⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
CIS-1,2-DICHLOROETHYLENE	MW-03	ug/l	NSD			NSD		70.00	NSD		<1.00	
CIS-1,2-DICHLOROETHYLENE	MW-04D	ug/l	NSD			NSD		70.00	NSD		<1.00	
CIS-1,2-DICHLOROETHYLENE	MW-04S	ug/l	NSD			NSD		70.00	NSD		<1.00	
CIS-1,2-DICHLOROETHYLENE	MW-05D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
CIS-1,2-DICHLOROETHYLENE	MW-05S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
CIS-1,2-DICHLOROETHYLENE	MW-07D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	1.00	70.00	No Change⊥	2.48	<1.00	
CIS-1,2-DICHLOROETHYLENE	MW-07S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
CIS-1,2-DICHLOROETHYLENE	MW-08BR	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
CIS-1,2-DICHLOROETHYLENE	MW-08D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
CIS-1,2-DICHLOROETHYLENE	MW-08S	ug/l	No Trend⊥	0.00000£	90⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
CIS-1,2-DICHLOROETHYLENE	MW-09	ug/l	No Trend⊥	0.00000£	45⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
CIS-1,2-DICHLOROETHYLENE	MW-09D	ug/l	No Trend⊥	-0.03589£	≥95Ø⊥	Compliance	6.42	70.00	No Change	9.51	6.40	
CIS-1,2-DICHLOROETHYLENE	MW-09S	ug/l	NSD			NSD		70.00	NSD		<1.00	
CIS-1,2-DICHLOROETHYLENE	MW-10D	ug/l	NSD			NSD		70.00	NSD		<1.00	
CIS-1,2-DICHLOROETHYLENE	MW-10S	ug/l	NSD			NSD		70.00	NSD		<1.00	
CIS-1,2-DICHLOROETHYLENE	MW-12	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
CIS-1,2-DICHLOROETHYLENE	MW-14	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
CIS-1,2-DICHLOROETHYLENE	MW-15	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
CIS-1,2-DICHLOROETHYLENE	MW-23D	ug/l	No Trend⊥	0.00000£	94⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	

CONRAIL												
Analyte Name	Well ID	Units	Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
			Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
CIS-1,2-DICHLOROETHYLENE	MW-23S	ug/l	No Trend⊥	-0.00817£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
CIS-1,2-DICHLOROETHYLENE	MW-24	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
CIS-1,2-DICHLOROETHYLENE	MW-25	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
CIS-1,2-DICHLOROETHYLENE	MW-27I	ug/l	NSD			NSD		70.00	NSD		<1.00
CIS-1,2-DICHLOROETHYLENE	MW-29I	ug/l	NSD			NSD		70.00	NSD		<1.00
CIS-1,2-DICHLOROETHYLENE	MW-30BR	ug/l	NSD			NSD		70.00	NSD		<1.00
CIS-1,2-DICHLOROETHYLENE	MW-30D	ug/l	NSD			NSD		70.00	NSD		<1.00
CIS-1,2-DICHLOROETHYLENE	MW-30I	ug/l	NSD			NSD		70.00	NSD		0.45
CIS-1,2-DICHLOROETHYLENE	MW-30S	ug/l	NSD			NSD		70.00	NSD		<10.00
CIS-1,2-DICHLOROETHYLENE	MW-31I	ug/l	NSD			NSD		70.00	NSD		<1.00
CIS-1,2-DICHLOROETHYLENE	MW-31S	ug/l	NSD			NSD		70.00	NSD		<1.00
CIS-1,2-DICHLOROETHYLENE	MW-33I	ug/l	NSD			NSD		70.00	NSD		<1.00
CIS-1,2-DICHLOROETHYLENE	MW-33S	ug/l	NSD			NSD		70.00	NSD		<1.00
CIS-1,2-DICHLOROETHYLENE	MW-34I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
CIS-1,2-DICHLOROETHYLENE	MW-36I	ug/l	NSD			NSD		70.00	NSD		<20.00
CIS-1,2-DICHLOROETHYLENE	MW-37D	ug/l	NSD			NSD		70.00	NSD		<7.10
CIS-1,2-DICHLOROETHYLENE	MW-37S	ug/l	NSD			NSD		70.00	NSD		<0.50
CIS-1,2-DICHLOROETHYLENE	MW-38D	ug/l	No Trend⊥	0.00000£	73⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
CIS-1,2-DICHLOROETHYLENE	MW-38S	ug/l	No Trend⊥	0.00000£	85⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
CIS-1,2-DICHLOROETHYLENE	MW-3D	ug/l	No Trend	0.00000£	55	Exceedance	128.92	70.00	No Change	150.99	120.00
CIS-1,2-DICHLOROETHYLENE	MW-3I	ug/l	No Trend	-0.01117£	≥95Ø	Compliance	4.52	70.00	No Change	8.30	3.60
CIS-1,2-DICHLOROETHYLENE	MW-41	ug/l	No Trend⊥	-0.09763£	≥95Ø⊥	Compliance	4.94	70.00	No Change	5.87	2.60
CIS-1,2-DICHLOROETHYLENE	MW-42I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
CIS-1,2-DICHLOROETHYLENE	MW-43BR	ug/l	No Trend⊥	0.00000£	87⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
CIS-1,2-DICHLOROETHYLENE	MW-43S	ug/l	NSD			NSD		70.00	NSD		<1.00

CONRAIL

Analyte Name	Well ID	Units	Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
			Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
CIS-1,2-DICHLOROETHYLENE	MW-44D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
CIS-1,2-DICHLOROETHYLENE	MW-47	ug/l	NSD			NSD		70.00	NSD		<50.00
CIS-1,2-DICHLOROETHYLENE	MW-50	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
CIS-1,2-DICHLOROETHYLENE	MW-51D	ug/l	No Trend⊥	-0.08787£	93⊥	Compliance⊥	0.50	70.00	No Change⊥	55.00	0.40
CIS-1,2-DICHLOROETHYLENE	MW-51I	ug/l	Downward	-0.08179£	≥95	Compliance	6.39	70.00	No Change	6.45	6.30
CIS-1,2-DICHLOROETHYLENE	MW-53	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
CIS-1,2-DICHLOROETHYLENE	MW-54	ug/l	NSD			NSD		70.00	NSD		5.60
CIS-1,2-DICHLOROETHYLENE	MW-55	ug/l	No Trend	-0.02007£	≥95Ø	Compliance	0.49	70.00	**Worse**	**0.63**	**<1.00**
CIS-1,2-DICHLOROETHYLENE	MW-56D	ug/l	No Trend⊥	0.00000£	87⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
CIS-1,2-DICHLOROETHYLENE	MW-56I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
CIS-1,2-DICHLOROETHYLENE	MW-56S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
CIS-1,2-DICHLOROETHYLENE	NE-26D	ug/l	NSD			NSD		70.00	NSD		2.30
CIS-1,2-DICHLOROETHYLENE	NE-26I	ug/l	NSD			NSD		70.00	NSD		<10.00
CIS-1,2-DICHLOROETHYLENE	NE-26S	ug/l	NSD			NSD		70.00	NSD		230.00
CIS-1,2-DICHLOROETHYLENE	NE-50D	ug/l	NSD			NSD		70.00	NSD		0.68
CIS-1,2-DICHLOROETHYLENE	NE-50I	ug/l	NSD			NSD		70.00	NSD		1.10
CIS-1,2-DICHLOROETHYLENE	NE-50S	ug/l	NSD			NSD		70.00	NSD		4.60
CIS-1,2-DICHLOROETHYLENE	NE-80D	ug/l	NSD			NSD		70.00	NSD		<0.50
CIS-1,2-DICHLOROETHYLENE	NE-80I	ug/l	NSD			NSD		70.00	NSD		<0.50
CIS-1,2-DICHLOROETHYLENE	NE-80S	ug/l	NSD			NSD		70.00	NSD		3.40
CIS-1,2-DICHLOROETHYLENE	OW1-D	ug/l	NSD			NSD		70.00	NSD		<1.00
CIS-1,2-DICHLOROETHYLENE	OW1-I	ug/l	NSD			NSD		70.00	NSD		0.78
CIS-1,2-DICHLOROETHYLENE	OW1-S	ug/l	NSD			NSD		70.00	NSD		<1.00
CIS-1,2-DICHLOROETHYLENE	OW2-2D	ug/l	NSD			NSD		70.00	NSD		<1.00
CIS-1,2-DICHLOROETHYLENE	OW2-2I	ug/l	NSD			NSD		70.00	NSD		1.50

CONRAIL												
Analyte Name	Well ID	Units	Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
			Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
CIS-1,2-DICHLOROETHYLENE	OW2-2S	ug/l	NSD			NSD		70.00	NSD		0.74
CIS-1,2-DICHLOROETHYLENE	OW2-3D	ug/l	NSD			NSD		70.00	NSD		<1.00
CIS-1,2-DICHLOROETHYLENE	OW2-3S	ug/l	NSD			NSD		70.00	NSD		<1.00
CIS-1,2-DICHLOROETHYLENE	OW3-1D	ug/l	NSD			NSD		70.00	NSD		0.35
CIS-1,2-DICHLOROETHYLENE	OW3-1I	ug/l	NSD			NSD		70.00	NSD		<1.00
CIS-1,2-DICHLOROETHYLENE	OW4-1D	ug/l	NSD			NSD		70.00	NSD		<1.00
CIS-1,2-DICHLOROETHYLENE	OW4-1I	ug/l	NSD			NSD		70.00	NSD		0.52
CIS-1,2-DICHLOROETHYLENE	OW4-1S	ug/l	NSD			NSD		70.00	NSD		<5.00
CIS-1,2-DICHLOROETHYLENE	OW5-D	ug/l	NSD			NSD		70.00	NSD		<1.00
CIS-1,2-DICHLOROETHYLENE	OW5-I	ug/l	NSD			NSD		70.00	NSD		<1.00
CIS-1,2-DICHLOROETHYLENE	OW5-S	ug/l	NSD			NSD		70.00	NSD		<1.00
CIS-1,2-DICHLOROETHYLENE	RAW-01D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
CIS-1,2-DICHLOROETHYLENE	RAW-01I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	2.00	70.00	No Change⊥	4.21	<4.00
CIS-1,2-DICHLOROETHYLENE	RAW-01S	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
CIS-1,2-DICHLOROETHYLENE	RAW-02D	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
CIS-1,2-DICHLOROETHYLENE	RAW-02I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
CIS-1,2-DICHLOROETHYLENE	RAW-02S	ug/l	No Trend⊥	0.00000£	66⊥	Compliance⊥	0.50	70.00	No Change⊥	1.50	<1.00
CIS-1,2-DICHLOROETHYLENE	RMW-02D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
CIS-1,2-DICHLOROETHYLENE	RMW-02S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
CIS-1,2-DICHLOROETHYLENE	RYWATER EFF	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	2.50	70.00	No Change⊥	5.50	<5.00
CIS-1,2-DICHLOROETHYLENE	RYWATERI N	ug/l	Downward	-0.18218£	≥95	Compliance	8.90	70.00	No Change	12.10	6.30
CIS-1,2-DICHLOROETHYLENE	W07	ug/l	NSD			NSD		70.00	NSD		<29.00
CIS-1,2-DICHLOROETHYLENE	W08	ug/l	NSD			NSD		70.00	NSD		<17.00
CIS-1,2-DICHLOROETHYLENE	W09	ug/l	NSD			NSD		70.00	NSD		<17.00

CONRAIL												
Analyte Name	Well ID	Units	Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
			Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
TRANS-1,2-DICHLOROETHENE	BMW-03	ug/l	NSD			NSD		70.00	NSD		0.81
TRANS-1,2-DICHLOROETHENE	BMW-06D	ug/l	NSD			NSD		70.00	NSD		<17.00
TRANS-1,2-DICHLOROETHENE	BMW-06S	ug/l	NSD			NSD		70.00	NSD		<1.00
TRANS-1,2-DICHLOROETHENE	BMW-07D	ug/l	NSD			NSD		70.00	NSD		<1.00
TRANS-1,2-DICHLOROETHENE	BMW-07S	ug/l	NSD			NSD		70.00	NSD		<1.00
TRANS-1,2-DICHLOROETHENE	BMW-09D	ug/l	NSD			NSD		70.00	NSD		<1.00
TRANS-1,2-DICHLOROETHENE	BMW-09S	ug/l	NSD			NSD		70.00	NSD		<1.00
TRANS-1,2-DICHLOROETHENE	BMW-10	ug/l	NSD			NSD		70.00	NSD		<1.00
TRANS-1,2-DICHLOROETHENE	DSMW-01	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	DSMW-02	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	DSMW-03	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	DSMW-04	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		70.00	No Change⊥	31.90	<12.00
TRANS-1,2-DICHLOROETHENE	DSMW-04D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	DSMW-04I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	1.35	70.00	No Change⊥	4.40	<1.00
TRANS-1,2-DICHLOROETHENE	DSMW-04S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	DSMW-07D	ug/l	No Trend⊥	0.00000£	52⊥	Compliance⊥	0.50	70.00	**Worse**	**0.33**	**<1.00**
TRANS-1,2-DICHLOROETHENE	DSMW-07I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	2.38	70.00	No Change⊥	5.50	<2.00
TRANS-1,2-DICHLOROETHENE	DSMW-07S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.63	70.00	No Change⊥	1.38	<1.00
TRANS-1,2-DICHLOROETHENE	DSMW-08D	ug/l	No Trend	-0.02859£	77	Compliance	0.66	70.00	No Change	0.83	0.66
TRANS-1,2-DICHLOROETHENE	DSMW-08I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.75	70.00	No Change⊥	2.20	<1.00
TRANS-1,2-DICHLOROETHENE	DSMW-08S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	DSMW-09D	ug/l	No Trend⊥	0.00000£	53⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	DSMW-09I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	1.05	70.00	No Change⊥	2.59	<1.00
TRANS-1,2-DICHLOROETHENE	DSMW-09S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	DSMW-10D	ug/l	No Trend	0.00000£	52	Compliance	3.06	70.00	No Change	3.39	3.20

CONRAIL											
			Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
Analyte Name	Well ID	Units	Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
TRANS-1,2-DICHLOROETHENE	DSMW-10I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	3.45	70.00	No Change⊥	9.13	<4.00
TRANS-1,2-DICHLOROETHENE	DSMW-10S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	E05	ug/l	NSD			NSD		70.00	NSD		<18.00
TRANS-1,2-DICHLOROETHENE	E09	ug/l	NSD			NSD		70.00	NSD		<2.00
TRANS-1,2-DICHLOROETHENE	E11	ug/l	NSD			NSD		70.00	NSD		<14.00
TRANS-1,2-DICHLOROETHENE	E12	ug/l	NSD			NSD		70.00	NSD		<4.70
TRANS-1,2-DICHLOROETHENE	EW-1	ug/l	NSD			NSD		70.00	NSD		<1.00
TRANS-1,2-DICHLOROETHENE	EW-2	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	0.19
TRANS-1,2-DICHLOROETHENE	EW-3	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance	0.52	70.00	No Change	0.79	0.45
TRANS-1,2-DICHLOROETHENE	EW-4	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	EW-5	ug/l	NSD			NSD		70.00	NSD		<1.00
TRANS-1,2-DICHLOROETHENE	GCWWATEREFF	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	2.50	70.00	No Change⊥	5.50	<5.00
TRANS-1,2-DICHLOROETHENE	GCWWATERIN	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	2.50	70.00	No Change⊥	5.50	<5.00
TRANS-1,2-DICHLOROETHENE	GS-1	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	GS-2	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.60	70.00	**Worse**	**0.59**	**<1.00**
TRANS-1,2-DICHLOROETHENE	GS-3D	ug/l	No Trend⊥	0.00000£	87⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	GS-3I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	GS-4	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	MW-01	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		70.00	No Change⊥	11.00	<1.00
TRANS-1,2-DICHLOROETHENE	MW-02BR	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	MW-02D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	MW-02S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	MW-03	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		70.00	No Change⊥	11.00	<1.00
TRANS-1,2-DICHLOROETHENE	MW-04D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		70.00	No Change⊥	11.00	<1.00

CONRAIL												
Analyte Name	Well ID	Units	Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)			
			Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)	
TRANS-1,2-DICHLOROETHENE	MW-04S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		70.00	No Change⊥	11.00	<1.00	
TRANS-1,2-DICHLOROETHENE	MW-05D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
TRANS-1,2-DICHLOROETHENE	MW-05S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
TRANS-1,2-DICHLOROETHENE	MW-06	ug/l	NSD			NSD		70.00	NSD		<10.00	
TRANS-1,2-DICHLOROETHENE	MW-07D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	1.00	70.00	No Change⊥	2.48	<1.00	
TRANS-1,2-DICHLOROETHENE	MW-07S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
TRANS-1,2-DICHLOROETHENE	MW-08BR	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
TRANS-1,2-DICHLOROETHENE	MW-08D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
TRANS-1,2-DICHLOROETHENE	MW-08S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
TRANS-1,2-DICHLOROETHENE	MW-09	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
TRANS-1,2-DICHLOROETHENE	MW-09D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	2.50	70.00	No Change⊥	5.50	<5.00	
TRANS-1,2-DICHLOROETHENE	MW-09S	ug/l	NSD			NSD		70.00	NSD		<1.00	
TRANS-1,2-DICHLOROETHENE	MW-10D	ug/l	NSD			NSD		70.00	NSD		<1.00	
TRANS-1,2-DICHLOROETHENE	MW-10S	ug/l	NSD			NSD		70.00	NSD		<1.00	
TRANS-1,2-DICHLOROETHENE	MW-12	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
TRANS-1,2-DICHLOROETHENE	MW-14	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
TRANS-1,2-DICHLOROETHENE	MW-15	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
TRANS-1,2-DICHLOROETHENE	MW-23D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
TRANS-1,2-DICHLOROETHENE	MW-23S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
TRANS-1,2-DICHLOROETHENE	MW-24	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
TRANS-1,2-DICHLOROETHENE	MW-25	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00	
TRANS-1,2-DICHLOROETHENE	MW-27I	ug/l	NSD			NSD		70.00	NSD		<1.00	
TRANS-1,2-DICHLOROETHENE	MW-29I	ug/l	NSD			NSD		70.00	NSD		<1.00	
TRANS-1,2-DICHLOROETHENE	MW-30BR	ug/l	NSD			NSD		70.00	NSD		<1.00	
TRANS-1,2-DICHLOROETHENE	MW-30D	ug/l	NSD			NSD		70.00	NSD		<1.00	

CONRAIL											
			Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
Analyte Name	Well ID	Units	Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
TRANS-1,2-DICHLOROETHENE	MW-30I	ug/l	NSD			NSD		70.00	NSD		<1.00
TRANS-1,2-DICHLOROETHENE	MW-30S	ug/l	NSD			NSD		70.00	NSD		<10.00
TRANS-1,2-DICHLOROETHENE	MW-31I	ug/l	NSD			NSD		70.00	NSD		<1.00
TRANS-1,2-DICHLOROETHENE	MW-31S	ug/l	NSD			NSD		70.00	NSD		<1.00
TRANS-1,2-DICHLOROETHENE	MW-33I	ug/l	NSD			NSD		70.00	NSD		<1.00
TRANS-1,2-DICHLOROETHENE	MW-33S	ug/l	NSD			NSD		70.00	NSD		<1.00
TRANS-1,2-DICHLOROETHENE	MW-34I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	MW-36I	ug/l	NSD			NSD		70.00	NSD		<20.00
TRANS-1,2-DICHLOROETHENE	MW-37D	ug/l	No Trend⊥	0.00000£	90⊥	NSD		70.00	**Worse**	**6.30**	**<7.10**
TRANS-1,2-DICHLOROETHENE	MW-37S	ug/l	No Trend⊥	0.00000£	NaN⊥	NSD		70.00	No Change⊥	11.00	<0.50
TRANS-1,2-DICHLOROETHENE	MW-38D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	MW-38S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	MW-3D	ug/l	No Trend⊥	-0.01545£	≥95Ø⊥	Compliance	0.98	70.00	No Change	1.00	0.65
TRANS-1,2-DICHLOROETHENE	MW-3I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	2.08	70.00	No Change	1.61	0.90
TRANS-1,2-DICHLOROETHENE	MW-41	ug/l	No Trend⊥	0.00000£	86⊥	Compliance⊥	1.25	70.00	No Change⊥	3.63	<1.00
TRANS-1,2-DICHLOROETHENE	MW-42I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	MW-43BR	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	MW-43S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		70.00	No Change⊥	11.00	<1.00
TRANS-1,2-DICHLOROETHENE	MW-44D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	MW-47	ug/l	NSD			NSD		70.00	NSD		<50.00
TRANS-1,2-DICHLOROETHENE	MW-50	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	MW-51D	ug/l	No Trend⊥	0.00000£	76⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	MW-51I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	MW-53	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	MW-54	ug/l	NSD			NSD		70.00	NSD		6.30

CONRAIL

Analyte Name	Well ID	Units	Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
			Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
TRANS-1,2-DICHLOROETHENE	MW-55	ug/l	No Trend⊥	0.00000£	65⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	MW-56D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	MW-56I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	MW-56S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	NE-26D	ug/l	NSD			NSD		70.00	NSD		<0.50
TRANS-1,2-DICHLOROETHENE	NE-26I	ug/l	NSD			NSD		70.00	NSD		<10.00
TRANS-1,2-DICHLOROETHENE	NE-26S	ug/l	NSD			NSD		70.00	NSD		<29.00
TRANS-1,2-DICHLOROETHENE	NE-50D	ug/l	NSD			NSD		70.00	NSD		<0.50
TRANS-1,2-DICHLOROETHENE	NE-50I	ug/l	NSD			NSD		70.00	NSD		<1.00
TRANS-1,2-DICHLOROETHENE	NE-50S	ug/l	NSD			NSD		70.00	NSD		0.24
TRANS-1,2-DICHLOROETHENE	NE-80D	ug/l	NSD			NSD		70.00	NSD		<0.50
TRANS-1,2-DICHLOROETHENE	NE-80I	ug/l	NSD			NSD		70.00	NSD		<0.50
TRANS-1,2-DICHLOROETHENE	NE-80S	ug/l	NSD			NSD		70.00	NSD		0.25
TRANS-1,2-DICHLOROETHENE	OW1-D	ug/l	NSD			NSD		70.00	NSD		<1.00
TRANS-1,2-DICHLOROETHENE	OW1-I	ug/l	NSD			NSD		70.00	NSD		<1.00
TRANS-1,2-DICHLOROETHENE	OW1-S	ug/l	NSD			NSD		70.00	NSD		<1.00
TRANS-1,2-DICHLOROETHENE	OW2-2D	ug/l	NSD			NSD		70.00	NSD		<1.00
TRANS-1,2-DICHLOROETHENE	OW2-2I	ug/l	NSD			NSD		70.00	NSD		<1.00
TRANS-1,2-DICHLOROETHENE	OW2-2S	ug/l	NSD			NSD		70.00	NSD		0.47
TRANS-1,2-DICHLOROETHENE	OW2-3D	ug/l	NSD			NSD		70.00	NSD		<1.00
TRANS-1,2-DICHLOROETHENE	OW2-3S	ug/l	NSD			NSD		70.00	NSD		<1.00
TRANS-1,2-DICHLOROETHENE	OW3-1D	ug/l	NSD			NSD		70.00	NSD		<1.00
TRANS-1,2-DICHLOROETHENE	OW3-1I	ug/l	NSD			NSD		70.00	NSD		<1.00
TRANS-1,2-DICHLOROETHENE	OW4-1D	ug/l	NSD			NSD		70.00	NSD		<1.00
TRANS-1,2-DICHLOROETHENE	OW4-1I	ug/l	NSD			NSD		70.00	NSD		<1.00

CONRAIL												
Analyte Name	Well ID	Units	Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
			Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
TRANS-1,2-DICHLOROETHENE	OW4-1S	ug/l	NSD			NSD		70.00	NSD		<5.00
TRANS-1,2-DICHLOROETHENE	OW5-D	ug/l	NSD			NSD		70.00	NSD		<1.00
TRANS-1,2-DICHLOROETHENE	OW5-I	ug/l	NSD			NSD		70.00	NSD		<1.00
TRANS-1,2-DICHLOROETHENE	OW5-S	ug/l	NSD			NSD		70.00	NSD		<1.00
TRANS-1,2-DICHLOROETHENE	RAW-01D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	RAW-01I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	2.00	70.00	No Change⊥	4.21	<4.00
TRANS-1,2-DICHLOROETHENE	RAW-01S	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	RAW-02D	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	RAW-02I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	RAW-02S	ug/l	No Trend⊥	0.00000£	66⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	RMW-02D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	RMW-02S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	70.00	No Change⊥	1.10	<1.00
TRANS-1,2-DICHLOROETHENE	RYWATER EFF	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	2.50	70.00	No Change⊥	5.50	<5.00
TRANS-1,2-DICHLOROETHENE	RYWATERI N	ug/l	No Trend⊥	0.00000£	94⊥	Compliance⊥	2.50	70.00	No Change⊥	5.50	<5.00
TRANS-1,2-DICHLOROETHENE	W07	ug/l	NSD			NSD		70.00	NSD		<29.00
TRANS-1,2-DICHLOROETHENE	W08	ug/l	NSD			NSD		70.00	NSD		<17.00
TRANS-1,2-DICHLOROETHENE	W09	ug/l	NSD			NSD		70.00	NSD		<17.00
TETRACHLOROETHYLENE(PCE)	BMW-03	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	BMW-06D	ug/l	NSD			NSD		5.00	NSD		<33.00
TETRACHLOROETHYLENE(PCE)	BMW-06S	ug/l	NSD			NSD		5.00	NSD		2.80
TETRACHLOROETHYLENE(PCE)	BMW-07D	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	BMW-07S	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	BMW-09D	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	BMW-09S	ug/l	NSD			NSD		5.00	NSD		<1.00

CONRAIL												
Analyte Name	Well ID	Units	Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)			
			Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)	
TETRACHLOROETHYLENE(PCE)	BMW-10	ug/l	NSD			NSD		5.00	NSD		<1.00	
TETRACHLOROETHYLENE(PCE)	DSMW-01	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
TETRACHLOROETHYLENE(PCE)	DSMW-02	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
TETRACHLOROETHYLENE(PCE)	DSMW-03	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
TETRACHLOROETHYLENE(PCE)	DSMW-04	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		5.00	No Change⊥	31.90	<12.00	
TETRACHLOROETHYLENE(PCE)	DSMW-04D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
TETRACHLOROETHYLENE(PCE)	DSMW-04I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	1.35	5.00	No Change⊥	4.40	<1.00	
TETRACHLOROETHYLENE(PCE)	DSMW-04S	ug/l	No Trend⊥	0.00000£	81⊥	Compliance⊥	2.30	5.00	No Change⊥	2.30	<1.00	
TETRACHLOROETHYLENE(PCE)	DSMW-07D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
TETRACHLOROETHYLENE(PCE)	DSMW-07I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	2.38	5.00	No Change⊥	5.50	<2.00	
TETRACHLOROETHYLENE(PCE)	DSMW-07S	ug/l	No Trend⊥	0.00000£	79⊥	Exceedance⊥	10.00	5.00	No Change⊥	10.00	0.39	
TETRACHLOROETHYLENE(PCE)	DSMW-08D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
TETRACHLOROETHYLENE(PCE)	DSMW-08I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.75	5.00	No Change⊥	2.20	<1.00	
TETRACHLOROETHYLENE(PCE)	DSMW-08S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
TETRACHLOROETHYLENE(PCE)	DSMW-09D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
TETRACHLOROETHYLENE(PCE)	DSMW-09I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	1.05	5.00	No Change⊥	2.59	<1.00	
TETRACHLOROETHYLENE(PCE)	DSMW-09S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
TETRACHLOROETHYLENE(PCE)	DSMW-10D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.85	5.00	No Change⊥	1.87	<1.00	
TETRACHLOROETHYLENE(PCE)	DSMW-10I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	3.45	5.00	No Change⊥	9.13	<4.00	
TETRACHLOROETHYLENE(PCE)	DSMW-10S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
TETRACHLOROETHYLENE(PCE)	E05	ug/l	NSD			NSD		5.00	NSD		<18.00	
TETRACHLOROETHYLENE(PCE)	E09	ug/l	NSD			NSD		5.00	NSD		<2.00	
TETRACHLOROETHYLENE(PCE)	E11	ug/l	NSD			NSD		5.00	NSD		<14.00	
TETRACHLOROETHYLENE(PCE)	E12	ug/l	NSD			NSD		5.00	NSD		<4.70	
TETRACHLOROETHYLENE(PCE)	EW-1	ug/l	NSD			NSD		5.00	NSD		0.73	

CONRAIL												
Analyte Name	Well ID	Units	Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)			
			Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)	
TETRACHLOROETHYLENE(PCE)	EW-2	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
TETRACHLOROETHYLENE(PCE)	EW-3	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
TETRACHLOROETHYLENE(PCE)	EW-4	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
TETRACHLOROETHYLENE(PCE)	EW-5	ug/l	NSD			NSD		5.00	NSD		<1.00	
TETRACHLOROETHYLENE(PCE)	GCW-1	ug/l	NSD			NSD		5.00	NSD		<83.00	
TETRACHLOROETHYLENE(PCE)	GCWWATEREFF	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	2.50	5.00	No Change⊥	5.50	<5.00	
TETRACHLOROETHYLENE(PCE)	GCWWATERIN	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	2.50	5.00	No Change⊥	5.50	<5.00	
TETRACHLOROETHYLENE(PCE)	GS-1	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
TETRACHLOROETHYLENE(PCE)	GS-2	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.60	5.00	No Change⊥	1.49	<1.00	
TETRACHLOROETHYLENE(PCE)	GS-3D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
TETRACHLOROETHYLENE(PCE)	GS-3I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
TETRACHLOROETHYLENE(PCE)	GS-4	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
TETRACHLOROETHYLENE(PCE)	MW-01	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		5.00	No Change⊥	11.00	<1.00	
TETRACHLOROETHYLENE(PCE)	MW-02BR	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
TETRACHLOROETHYLENE(PCE)	MW-02D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
TETRACHLOROETHYLENE(PCE)	MW-02S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
TETRACHLOROETHYLENE(PCE)	MW-03	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		5.00	No Change⊥	11.00	<1.00	
TETRACHLOROETHYLENE(PCE)	MW-04D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		5.00	No Change⊥	11.00	<1.00	
TETRACHLOROETHYLENE(PCE)	MW-04S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		5.00	No Change⊥	11.00	<1.00	
TETRACHLOROETHYLENE(PCE)	MW-05D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
TETRACHLOROETHYLENE(PCE)	MW-05S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	
TETRACHLOROETHYLENE(PCE)	MW-06	ug/l	No Trend⊥	0.00000£	45⊥	NSD		5.00	No Change⊥	11.00	<10.00	
TETRACHLOROETHYLENE(PCE)	MW-07D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	1.00	5.00	No Change⊥	2.48	<1.00	
TETRACHLOROETHYLENE(PCE)	MW-07S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00	

CONRAIL											
			Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
Analyte Name	Well ID	Units	Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
TETRACHLOROETHYLENE(PCE)	MW-08BR	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	MW-08D	ug/l	No Trend⊥	0.00000£	70⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	MW-08S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	MW-09	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	MW-09D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	2.50	5.00	**Worse⊥**	**4.95**	**<5.00**
TETRACHLOROETHYLENE(PCE)	MW-09S	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	MW-10D	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	MW-10S	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	MW-11D	ug/l	NSD			NSD		5.00	NSD		<10.00
TETRACHLOROETHYLENE(PCE)	MW-12	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	MW-14	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	MW-15	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	MW-23D	ug/l	No Trend	0.00000£	93	Compliance	1.76	5.00	No Change	2.21	0.87
TETRACHLOROETHYLENE(PCE)	MW-23S	ug/l	Downward	-0.05947£	≥95	Compliance	0.71	5.00	No Change	0.84	0.60
TETRACHLOROETHYLENE(PCE)	MW-24	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	MW-25	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	MW-27I	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	MW-29I	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	MW-30BR	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	MW-30D	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	MW-30I	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	MW-30S	ug/l	NSD			NSD		5.00	NSD		13.00
TETRACHLOROETHYLENE(PCE)	MW-31I	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	MW-31S	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	MW-32S	ug/l	NSD			NSD		5.00	NSD		3.00

CONRAIL												
			Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
Analyte Name	Well ID	Units	Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
TETRACHLOROETHYLENE(PCE)	MW-33I	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	MW-33S	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	MW-34I	ug/l	No Trend⊥	-0.05073£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	MW-36I	ug/l	NSD			NSD		5.00	NSD		<20.00
TETRACHLOROETHYLENE(PCE)	MW-37D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		5.00	No Change⊥	36.30	<14.00
TETRACHLOROETHYLENE(PCE)	MW-37S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		5.00	No Change⊥	11.00	<1.00
TETRACHLOROETHYLENE(PCE)	MW-38D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	MW-38S	ug/l	No Trend⊥	0.00000£	93⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	MW-3D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	MW-3I	ug/l	No Trend⊥	0.00000£	75⊥	Compliance⊥	1.00	5.00	**Worse⊥**	**1.93**	**<2.00**
TETRACHLOROETHYLENE(PCE)	MW-41	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	1.25	5.00	No Change⊥	3.63	<1.00
TETRACHLOROETHYLENE(PCE)	MW-42I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	MW-43BR	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	MW-43S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		5.00	No Change⊥	11.00	<1.00
TETRACHLOROETHYLENE(PCE)	MW-44D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	MW-46I	ug/l	NSD			NSD		5.00	NSD		5.00
TETRACHLOROETHYLENE(PCE)	MW-47	ug/l	NSD			NSD		5.00	NSD		<50.00
TETRACHLOROETHYLENE(PCE)	MW-50	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	MW-51D	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	MW-51I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	MW-53	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	MW-54	ug/l	NSD			NSD		5.00	NSD		<2.00
TETRACHLOROETHYLENE(PCE)	MW-55	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	MW-56D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	MW-56I	ug/l	No Trend⊥	0.00000£	94⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	0.40

CONRAIL												
Analyte Name	Well ID	Units	Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
			Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
TETRACHLOROETHYLENE(PCE)	MW-56S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	NE-26D	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	NE-26I	ug/l	NSD			NSD		5.00	NSD		<20.00
TETRACHLOROETHYLENE(PCE)	NE-26S	ug/l	NSD			NSD		5.00	NSD		<59.00
TETRACHLOROETHYLENE(PCE)	NE-50D	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	NE-50I	ug/l	NSD			NSD		5.00	NSD		<2.00
TETRACHLOROETHYLENE(PCE)	NE-50S	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	NE-80D	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	NE-80I	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	NE-80S	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	OW1-D	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	OW1-I	ug/l	NSD			NSD		5.00	NSD		1.90
TETRACHLOROETHYLENE(PCE)	OW1-S	ug/l	NSD			NSD		5.00	NSD		0.44
TETRACHLOROETHYLENE(PCE)	OW2-2D	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	OW2-2I	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	OW2-2S	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	OW2-3D	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	OW2-3S	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	OW3-1D	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	OW3-1I	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	OW4-1D	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	OW4-1I	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	OW4-1S	ug/l	NSD			NSD		5.00	NSD		<5.00
TETRACHLOROETHYLENE(PCE)	OW5-D	ug/l	NSD			NSD		5.00	NSD		<1.00
TETRACHLOROETHYLENE(PCE)	OW5-I	ug/l	NSD			NSD		5.00	NSD		<1.00

CONRAIL

Analyte Name	Well ID	Units	Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
			Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
TETRACHLOROETHYLENE(PCE)	OW5-S	ug/l	NSD			NSD		5.00	NSD		0.37
TETRACHLOROETHYLENE(PCE)	RAW-01D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	RAW-01I	ug/l	No Trend⊥	0.00000£	91⊥	Compliance⊥	2.30	5.00	No Change⊥	4.40	<4.00
TETRACHLOROETHYLENE(PCE)	RAW-01S	ug/l	No Trend⊥	0.00000£	45⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	RAW-02D	ug/l	No Trend⊥	0.00000£	45⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	RAW-02I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	RAW-02S	ug/l	No Trend⊥	0.00000£	45⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	RMW-02D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	RMW-02S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	5.00	No Change⊥	1.10	<1.00
TETRACHLOROETHYLENE(PCE)	RYWATER EFF	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	2.50	5.00	No Change⊥	5.50	<5.00
TETRACHLOROETHYLENE(PCE)	RYWATERI N	ug/l	No Trend⊥	0.00000£	54⊥	Compliance⊥	2.50	5.00	No Change⊥	5.50	<5.00
TETRACHLOROETHYLENE(PCE)	W07	ug/l	NSD			NSD		5.00	NSD		<29.00
TETRACHLOROETHYLENE(PCE)	W08	ug/l	NSD			NSD		5.00	NSD		<17.00
TETRACHLOROETHYLENE(PCE)	W09	ug/l	NSD			NSD		5.00	NSD		<17.00
VINYL CHLORIDE	BMW-03	ug/l	NSD			NSD		2.00	NSD		<1.00
VINYL CHLORIDE	BMW-06D	ug/l	NSD			NSD		2.00	NSD		<33.00
VINYL CHLORIDE	BMW-06S	ug/l	NSD			NSD		2.00	NSD		<1.00
VINYL CHLORIDE	BMW-07D	ug/l	NSD			NSD		2.00	NSD		<1.00
VINYL CHLORIDE	BMW-07S	ug/l	NSD			NSD		2.00	NSD		<1.00
VINYL CHLORIDE	BMW-09D	ug/l	NSD			NSD		2.00	NSD		<1.00
VINYL CHLORIDE	BMW-09S	ug/l	NSD			NSD		2.00	NSD		<1.00
VINYL CHLORIDE	BMW-10	ug/l	NSD			NSD		2.00	NSD		<1.00
VINYL CHLORIDE	DSMW-01	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00
VINYL CHLORIDE	DSMW-02	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00

CONRAIL												
Analyte Name	Well ID	Units	Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
			Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
VINYL CHLORIDE	DSMW-03	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00
VINYL CHLORIDE	DSMW-04	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		2.00	No Change⊥	31.90	<12.00
VINYL CHLORIDE	DSMW-04D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00
VINYL CHLORIDE	DSMW-04I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	1.35	2.00	No Change⊥	4.40	<1.00
VINYL CHLORIDE	DSMW-04S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00
VINYL CHLORIDE	DSMW-07D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00
VINYL CHLORIDE	DSMW-07I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	None⊥	2.38	2.00	No Change⊥	5.50	<2.00
VINYL CHLORIDE	DSMW-07S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.63	2.00	No Change⊥	1.38	<1.00
VINYL CHLORIDE	DSMW-08D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00
VINYL CHLORIDE	DSMW-08I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.75	2.00	No Change⊥	2.20	<1.00
VINYL CHLORIDE	DSMW-08S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00
VINYL CHLORIDE	DSMW-09D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00
VINYL CHLORIDE	DSMW-09I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	1.05	2.00	No Change⊥	2.59	<1.00
VINYL CHLORIDE	DSMW-09S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00
VINYL CHLORIDE	DSMW-10D	ug/l	Downward	-0.21801£	≥95	Compliance	1.30	2.00	No Change	1.57	1.10
VINYL CHLORIDE	DSMW-10I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	None⊥	3.45	2.00	No Change⊥	9.13	<4.00
VINYL CHLORIDE	DSMW-10S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00
VINYL CHLORIDE	E05	ug/l	NSD			NSD		2.00	NSD		<18.00
VINYL CHLORIDE	E09	ug/l	NSD			NSD		2.00	NSD		<2.00
VINYL CHLORIDE	E11	ug/l	NSD			NSD		2.00	NSD		<14.00
VINYL CHLORIDE	E12	ug/l	NSD			NSD		2.00	NSD		<4.70
VINYL CHLORIDE	EW-1	ug/l	NSD			NSD		2.00	NSD		<1.00
VINYL CHLORIDE	EW-2	ug/l	No Trend⊥	0.00000£	94⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	0.25
VINYL CHLORIDE	EW-3	ug/l	Downward	-0.03279£	≥95	Compliance	1.65	2.00	No Change	2.32	1.30
VINYL CHLORIDE	EW-4	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00

CONRAIL												
Analyte Name	Well ID	Units	Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)			
			Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)	
VINYL CHLORIDE	EW-5	ug/l	NSD			NSD		2.00	NSD		<1.00	
VINYL CHLORIDE	GCW-1	ug/l	NSD			NSD		2.00	NSD		<83.00	
VINYL CHLORIDE	GCWWATEREFF	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	1.00	2.00	No Change⊥	2.20	<2.00	
VINYL CHLORIDE	GCWWATERIN	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	1.00	2.00	No Change⊥	2.20	<2.00	
VINYL CHLORIDE	GS-1	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00	
VINYL CHLORIDE	GS-2	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.60	2.00	No Change⊥	1.49	<1.00	
VINYL CHLORIDE	GS-3D	ug/l	No Trend⊥	0.00000£	57⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00	
VINYL CHLORIDE	GS-3I	ug/l	No Trend⊥	0.00000£	94⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00	
VINYL CHLORIDE	GS-4	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00	
VINYL CHLORIDE	MW-01	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		2.00	No Change⊥	11.00	<1.00	
VINYL CHLORIDE	MW-02BR	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00	
VINYL CHLORIDE	MW-02D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00	
VINYL CHLORIDE	MW-02S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00	
VINYL CHLORIDE	MW-03	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		2.00	No Change⊥	11.00	<1.00	
VINYL CHLORIDE	MW-04D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		2.00	No Change⊥	11.00	<1.00	
VINYL CHLORIDE	MW-04S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		2.00	No Change⊥	11.00	<1.00	
VINYL CHLORIDE	MW-05D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00	
VINYL CHLORIDE	MW-05S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00	
VINYL CHLORIDE	MW-06	ug/l	No Trend⊥	0.00000£	NaN⊥	NSD		2.00	No Change⊥	11.00	<10.00	
VINYL CHLORIDE	MW-07D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	1.00	2.00	No Change⊥	2.48	<1.00	
VINYL CHLORIDE	MW-07S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00	
VINYL CHLORIDE	MW-08BR	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00	
VINYL CHLORIDE	MW-08D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00	
VINYL CHLORIDE	MW-08S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00	

CONRAIL												
Analyte Name	Well ID	Units	Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)			
			Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)	
VINYL CHLORIDE	MW-09	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00	
VINYL CHLORIDE	MW-09D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	**None⊥**	**2.50**	**2.00**	**Worse⊥**	**4.95**	**<5.00**	
VINYL CHLORIDE	MW-09S	ug/l	NSD			NSD		2.00	NSD		<1.00	
VINYL CHLORIDE	MW-10D	ug/l	NSD			NSD		2.00	NSD		<1.00	
VINYL CHLORIDE	MW-10S	ug/l	NSD			NSD		2.00	NSD		<1.00	
VINYL CHLORIDE	MW-11D	ug/l	NSD			NSD		2.00	NSD		<10.00	
VINYL CHLORIDE	MW-12	ug/l	No Trend⊥	0.00000£	NaN⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00	
VINYL CHLORIDE	MW-14	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00	
VINYL CHLORIDE	MW-15	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00	
VINYL CHLORIDE	MW-23D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00	
VINYL CHLORIDE	MW-23S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00	
VINYL CHLORIDE	MW-24	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00	
VINYL CHLORIDE	MW-25	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00	
VINYL CHLORIDE	MW-27I	ug/l	NSD			NSD		2.00	NSD		<1.00	
VINYL CHLORIDE	MW-29I	ug/l	NSD			NSD		2.00	NSD		<1.00	
VINYL CHLORIDE	MW-30BR	ug/l	NSD			NSD		2.00	NSD		<1.00	
VINYL CHLORIDE	MW-30D	ug/l	NSD			NSD		2.00	NSD		<1.00	
VINYL CHLORIDE	MW-30I	ug/l	NSD			NSD		2.00	NSD		<1.00	
VINYL CHLORIDE	MW-30S	ug/l	NSD			NSD		2.00	NSD		<10.00	
VINYL CHLORIDE	MW-31I	ug/l	NSD			NSD		2.00	NSD		<1.00	
VINYL CHLORIDE	MW-31S	ug/l	NSD			NSD		2.00	NSD		<1.00	
VINYL CHLORIDE	MW-33I	ug/l	NSD			NSD		2.00	NSD		<1.00	
VINYL CHLORIDE	MW-33S	ug/l	NSD			NSD		2.00	NSD		<1.00	
VINYL CHLORIDE	MW-34I	ug/l	No Trend⊥	0.00000£	89⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00	
VINYL CHLORIDE	MW-36I	ug/l	NSD			NSD		2.00	NSD		<20.00	

CONRAIL												
			Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
Analyte Name	Well ID	Units	Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
VINYL CHLORIDE	MW-37D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		2.00	No Change⊥	36.30	<14.00
VINYL CHLORIDE	MW-37S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		2.00	No Change⊥	11.00	<1.00
VINYL CHLORIDE	MW-38D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00
VINYL CHLORIDE	MW-38S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00
VINYL CHLORIDE	MW-3D	ug/l	Downward	-0.09052£	≥95	Compliance	1.00	2.00	Better	1.15	0.71
VINYL CHLORIDE	MW-3I	ug/l	No Trend⊥	0.00000£	52⊥	None⊥	2.00	2.00	No Change⊥	2.20	0.58
VINYL CHLORIDE	MW-41	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	1.25	2.00	No Change⊥	3.63	<1.00
VINYL CHLORIDE	MW-42I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00
VINYL CHLORIDE	MW-43BR	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00
VINYL CHLORIDE	MW-43S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	NSD		2.00	No Change⊥	11.00	<1.00
VINYL CHLORIDE	MW-44D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00
VINYL CHLORIDE	MW-47	ug/l	NSD			NSD		2.00	NSD		<50.00
VINYL CHLORIDE	MW-50	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00
VINYL CHLORIDE	MW-51D	ug/l	No Trend⊥	0.00000£	76⊥	Compliance⊥	0.50	2.00	No Change⊥	5.40	<1.00
VINYL CHLORIDE	MW-51I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.74	2.00	No Change⊥	1.10	<1.00
VINYL CHLORIDE	MW-53	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00
VINYL CHLORIDE	MW-54	ug/l	NSD			NSD		2.00	NSD		<2.00
VINYL CHLORIDE	MW-55	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00
VINYL CHLORIDE	MW-56D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00
VINYL CHLORIDE	MW-56I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00
VINYL CHLORIDE	MW-56S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00
VINYL CHLORIDE	NE-26D	ug/l	NSD			NSD		2.00	NSD		<1.00
VINYL CHLORIDE	NE-26I	ug/l	NSD			NSD		2.00	NSD		<20.00
VINYL CHLORIDE	NE-26S	ug/l	NSD			NSD		2.00	NSD		<59.00
VINYL CHLORIDE	NE-50D	ug/l	NSD			NSD		2.00	NSD		<1.00

CONRAIL												
Analyte Name	Well ID	Units	Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
			Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
VINYL CHLORIDE	NE-50I	ug/l	NSD			NSD		2.00	NSD		<2.00
VINYL CHLORIDE	NE-50S	ug/l	NSD			NSD		2.00	NSD		1.10
VINYL CHLORIDE	NE-80D	ug/l	NSD			NSD		2.00	NSD		<1.00
VINYL CHLORIDE	NE-80I	ug/l	NSD			NSD		2.00	NSD		<1.00
VINYL CHLORIDE	NE-80S	ug/l	NSD			NSD		2.00	NSD		1.30
VINYL CHLORIDE	OW1-D	ug/l	NSD			NSD		2.00	NSD		<1.00
VINYL CHLORIDE	OW1-I	ug/l	NSD			NSD		2.00	NSD		<1.00
VINYL CHLORIDE	OW1-S	ug/l	NSD			NSD		2.00	NSD		<1.00
VINYL CHLORIDE	OW2-2D	ug/l	NSD			NSD		2.00	NSD		<1.00
VINYL CHLORIDE	OW2-2I	ug/l	NSD			NSD		2.00	NSD		<1.00
VINYL CHLORIDE	OW2-2S	ug/l	NSD			NSD		2.00	NSD		9.10
VINYL CHLORIDE	OW2-3D	ug/l	NSD			NSD		2.00	NSD		<1.00
VINYL CHLORIDE	OW2-3S	ug/l	NSD			NSD		2.00	NSD		<1.00
VINYL CHLORIDE	OW3-1D	ug/l	NSD			NSD		2.00	NSD		<1.00
VINYL CHLORIDE	OW3-1I	ug/l	NSD			NSD		2.00	NSD		<1.00
VINYL CHLORIDE	OW4-1D	ug/l	NSD			NSD		2.00	NSD		<1.00
VINYL CHLORIDE	OW4-1I	ug/l	NSD			NSD		2.00	NSD		<1.00
VINYL CHLORIDE	OW4-1S	ug/l	NSD			NSD		2.00	NSD		<5.00
VINYL CHLORIDE	OW5-D	ug/l	NSD			NSD		2.00	NSD		<1.00
VINYL CHLORIDE	OW5-I	ug/l	NSD			NSD		2.00	NSD		<1.00
VINYL CHLORIDE	OW5-S	ug/l	NSD			NSD		2.00	NSD		<1.00
VINYL CHLORIDE	RAW-01D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00
VINYL CHLORIDE	RAW-01I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	None⊥	2.00	2.00	No Change⊥	4.21	<4.00
VINYL CHLORIDE	RAW-01S	ug/l	No Trend⊥	0.00000£	45⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00
VINYL CHLORIDE	RAW-02D	ug/l	No Trend⊥	0.00000£	45⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00

CONRAIL

Analyte Name	Well ID	Units	Trend Test (95% Confidence)			Compare-to-Standard Test (% Confidence)			Compare-to-Baseline Test (95% Confidence)		
			Result	Slope Estimate (Units/Yr)	Mann-Kendall Confidence Attained (%)	Result	UCL (Units)	Standard (Units)	Result	UPL (Units)	Most Recent Datum (Units)
VINYL CHLORIDE	RAW-02I	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00
VINYL CHLORIDE	RAW-02S	ug/l	No Trend⊥	0.00000£	88⊥	Compliance⊥	0.50	2.00	No Change⊥	68.00	<1.00
VINYL CHLORIDE	RMW-02D	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00
VINYL CHLORIDE	RMW-02S	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	0.50	2.00	No Change⊥	1.10	<1.00
VINYL CHLORIDE	RYWATER EFF	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Compliance⊥	1.00	2.00	No Change⊥	2.20	<2.00
VINYL CHLORIDE	RYWATERI N	ug/l	No Trend⊥	0.00000£	≥95Ø⊥	Exceedance⊥	2.50	2.00	No Change⊥	2.50	<2.00
VINYL CHLORIDE	W07	ug/l	NSD			NSD		2.00	NSD		<29.00
VINYL CHLORIDE	W08	ug/l	NSD			NSD		2.00	NSD		<17.00
VINYL CHLORIDE	W09	ug/l	NSD			NSD		2.00	NSD		<17.00

NOTES:
NR means test was Not Requested.
NSD means Not Sufficient Data to perform test.
£ means slope estimate for log-transformed data, with units of "1/yr". Log(2) times its reciprocal is doubling(+)/halving(-) time.
⊥ indicates caution is needed because test data contain large proportion of nondetects.
Ø indicates slope confidence interval contains zero, despite confidence attained value.
τ indicates numerical disagreement between two trend methods. Highlighting indicates recommended result.
Run Identifier: 01-32B87DFF8-8838F3A47C87C2FD3CFC940781F9D28C
Statistical Note: When used, ND surrogate = 0.5 X Median of Nondetects' Reporting Detection Limits.
These results obtained on 03/27/2014 using PAM Version 0.62beta.

Site Inspection Checklist

Five-Year Review Site Inspection Checklist

I. SITE INFORMATION

Site name: Conrail Rail Yard Site	**Date of inspection: November 7, 2013**
Location and Region: Elkhart, IL (R5)	**EPA ID: IND000715490**
Agency, office, or company leading the five-year review: U.S. EPA – Region 5 with assistance from Indiana Department of Environmental Management	**Weather/temperature:** Clear, cool. 48 degrees F.

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- X Access controls
- X Institutional controls
- X Groundwater pump and treatment
- ☐ Surface water collection and treatment
- X Other (monitoring wells and piezometers)
- ☐ Monitored natural attenuation
- X Groundwater containment
- ☐ Vertical barrier walls

Attachments: X Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

1. **Drag Strip O&M site manager** _Ryan Spyker___Field Superintendent__ _1/9/14_____
   Name Title Date
   Interviewed: ☐ at site ☐ at office **X** by email Phone no. (574) 271-3447_
   Problems, suggestions; X Report attached _

2. **Rail Yard O&M site manager** _Tom Hudson Sr. Geologist, URS Corp. _1/9/14_____
   Name Title Date
   Interviewed ☐ at site ☐ at office **X** by email Phone no. (513) 651-3440
   Problems, suggestions; X Report attached

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

   Agency __Indiana Department of Environmental Management
   Contact _Kevin Herron_____Project Manager _____
   Name Title Date Phone no.

   Agency _Elkhart County Health Department_____
   Contact _Tara Still_____
   Name Title Date Phone no.

Problems; suggestions; X Report attached _

4. **Other interviews** (optional) X Report attached.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**
   - X O&M manual — X Readily available — ☐ Up to date — ☐ N/A
   - ☐ As-built drawings — ☐ Readily available — ☐ Up to date — ☐ N/A
   - Maintenance logs — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks

2. **Site-Specific Health and Safety Plan** — X Readily available — ☐ Up to date — ☐ N/A
   - ☐ Contingency plan/emergency response plan — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks

3. **O&M and OSHA Training Records** — X Readily available — ☐ Up to date — ☐ N/A

   Remarks

4. **Permits and Service Agreements**
   - ☐ Air discharge permit — ☐ Readily available — ☐ Up to date — N/A
   - ☐ Effluent discharge — ☐ Readily available — ☐ Up to date — N/A
   - ☐ Waste disposal, POTW — ☐ Readily available — ☐ Up to date — N/A
   - ☐ Other permits — ☐ Readily available — ☐ Up to date — N/A

   Remarks

5. **Gas Generation Records** — ☐ Readily available — ☐ Up to date — **X** N/A

   Remarks

6. **Settlement Monument Records** — ☐ Readily available — ☐ Up to date — **X** N/A

   Remarks

7. **Groundwater Monitoring Records** — **X** Readily available — ☐ Up to date — ☐ N/A

   Remarks

8. **Leachate Extraction Records** — **X** Readily available — ☐ Up to date — ☐ N/A

   Remarks

9. **Discharge Compliance Records**
   - ☐ Air — ☐ Readily available — ☐ Up to date — ☐ N/A
   - X Water (effluent) — **X** Readily available — ☐ Up to date — ☐ N/A

   Remarks

10. **Daily Access/Security Logs** — X Readily available — ☐ Up to date — ☐ N/A

    Remarks

IV. O&M COSTS

1. **O&M Organization**

☐ State in-house ☐ Contractor for State
X PRP in-house X Contractor for PRP
☐ Federal Facility in-house ☐ Contractor for Federal Facility
☐ Other_____

2. **O&M Cost Records (See attached)**

☐ Readily available ☐ Up to date
☐ Funding mechanism/agreement in place
Original O&M cost estimate _____

Total annual cost by year for review period if available

From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost

3. **Unanticipated or Unusually High O&M Costs During Review Period**

Describe costs and reasons:

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable ☐ N/A

A. Fencing -

1. **X Fencing damaged** ☐ Location shown on site map ☐ Gates secured ☐ N/A

Remarks_
_____ Fencing to the Drag Strip Area GCW needs repair._____

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A

Remarks: Security measures at the Rail Yard appear sufficient. Wells and buildings are locked. There is a site wide 24-hr security presence in the form of Norfolk Southern Police Force patrols. No signs of vandalism or trespass._____

C. Institutional Controls (ICs)

1. **Implementation and enforcement: Rail Yard Area**

Site conditions imply ICs not properly implemented ☐ Yes X No ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes X No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) __Full time staff operate the Rail Yard.
Frequency: Constant during operations

Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date X Yes ☐ No ☐ N/A
Reports are verified by the lead agency X Yes ☐ No ☐ N/A

Specific requirements in deed or decision documents have been met X Yes ☐ No ☐ N/A
Violations have been reported ☐ Yes X No ☐ N/A
Other problems or suggestions: ☐ Report attached

A Restrictive Covenant and Easement (RCE) has been filed for the Rail Yard portion of the Conrail Site. An update to the RCE was generated by the Settling Parties in 2011. Execution of the updated RCE is in progress.

Drag Strip Area

Site conditions imply ICs not properly implemented X Yes ☐ No ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes ☐ No X N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____

Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date ☐ Yes ☐ No X N/A
Reports are verified by the lead agency ☐ Yes ☐ No X N/A

Specific requirements in deed or decision documents have been met ☐ Yes ☐ No X N/A
Violations have been reported ☐ Yes ☐ No X N/A
Other problems or suggestions: ☐ Report attached
There is currently no RCE for the Drag Strip property. The Settling Parties have sent the Drag Strip property owner a RCE for signature, but the owner refuses to sign. Currently, the Settling Parties are in federal court for access plus the RCE.

2. **Adequacy** ☐ ICs are adequate **X** ICs are inadequate ☐ N/A
Remarks__
_ICs for the Rail Yard property are adequate, however, there are currently no ICs in place for the Drag Strip Area.

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map **X** No vandalism evident
Remarks_____None observed.

2. **Land use changes on site X** N/A
Remarks_____

3. **Land use changes off site X** N/A
Remarks_____

VI. GENERAL SITE CONDITIONS

A. Roads **X** Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map X Roads adequate ☐ N/A
Remarks_

B. Other Site Conditions

Remarks:

VII. LANDFILL COVERS ☐ Applicable X N/A

A. Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☐ Settlement not evident
Areal extent_____ Depth_____
Remarks_____

2. **Cracks** ☐ Location shown on site map ☐ Cracking not evident
Lengths_____ Widths_____ Depths_____
Remarks_____

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident
Areal extent_____ Depth_____
Remarks_____

4. **Holes** ☐ Location shown on site map ☐ Holes not evident
Areal extent_____ Depth_____
Remarks_____

5. **Vegetative Cover** ☐ Grass ☐ Cover properly established ☐ No signs of stress
☐ Trees/Shrubs (indicate size and locations on a diagram)
Remarks_____

6. **Alternative Cover (armored rock, concrete, etc.)** ☐ N/A
Remarks_____

7. **Bulges** ☐ Location shown on site map ☐ Bulges not evident
Areal extent_____ Height_____

Remarks_____

_____

8. **Wet Areas/Water Damage** ☐ Wet areas/water damage not evident
☐ Wet areas ☐ Location shown on site map Areal extent_____
☐ Ponding ☐ Location shown on site map Areal extent_____
☐ Seeps ☐ Location shown on site map Areal extent_____
☐ Soft subgrade ☐ Location shown on site map Areal extent_____
Remarks_____

_____

9. **Slope Instability** ☐ Slides ☐ Location shown on site map ☐ No evidence of slope instability
Areal extent_____
Remarks_____

_____

B. Benches ☐ Applicable ☐ N/A
(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1. **Flows Bypass Bench** ☐ Location shown on site map ☐ N/A or okay
Remarks_____

_____

2. **Bench Breached** ☐ Location shown on site map ☐ N/A or okay
Remarks_____

_____

3. **Bench Overtopped** ☐ Location shown on site map ☐ N/A or okay
Remarks_____

_____

C. Letdown Channels ☐ Applicable ☐ N/A
(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. **Settlement** ☐ Location shown on site map ☐ No evidence of settlement
Areal extent_____ Depth_____
Remarks_____

_____

2. **Material Degradation** ☐ Location shown on site map ☐ No evidence of degradation
Material type_____ Areal extent_____
Remarks_____

_____

3. **Erosion** ☐ Location shown on site map ☐ No evidence of erosion
Areal extent_____ Depth_____
Remarks_____

_____

4. **Undercutting** ☐ Location shown on site map ☐ No evidence of undercutting
Areal extent_____ Depth_____

Remarks_____

5. **Obstructions** Type_____ ☐ No obstructions
☐ Location shown on site map Areal extent_____
Size_____
Remarks_____

6. **Excessive Vegetative Growth** Type_____
☐ No evidence of excessive growth
☐ Vegetation in channels does not obstruct flow
☐ Location shown on site map Areal extent_____
Remarks_____

D. Cover Penetrations ☐ Applicable ☐ N/A

1. **Gas Vents** ☐ Active ☐ Passive
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance
☐ N/A
Remarks_____

2. **Gas Monitoring Probes**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

3. **Monitoring Wells** (within surface area of landfill)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

4. **Leachate Extraction Wells**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☐ N/A
Remarks_____

E. Gas Collection and Treatment ☐ Applicable ☐ N/A

1. **Gas Treatment Facilities**
☐ Flaring ☐ Thermal destruction ☐ Collection for reuse
☐ Good condition ☐ Needs Maintenance
Remarks_____

2. **Gas Collection Wells, Manifolds and Piping**

☐ Good condition ☐ Needs Maintenance
Remarks_____

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____

F. Cover Drainage Layer ☐ Applicable ☐ N/A

1. **Outlet Pipes Inspected** ☐ Functioning N/A
Remarks_____

2. **Outlet Rock Inspected** ☐ Functioning ☐ N/A
Remarks_____

G. Detention/Sedimentation Ponds ☐ Applicable ☐ N/A

1. **Siltation** Areal extent_____ Depth_____ ☐ N/A
☐ Siltation not evident
Remarks_____

2. **Erosion** Areal extent_____ Depth_____
☐ Erosion not evident
Remarks_____

3. **Outlet Works** ☐ Functioning ☐ N/A
Remarks_____

4. **Dam** ☐ Functioning ☐ N/A
Remarks_____

H. Retaining Walls ☐ Applicable ☐ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident
Horizontal displacement_____ Vertical displacement_____
Rotational displacement_____
Remarks_____

2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident
Remarks_____

I. Perimeter Ditches/Off-Site Discharge ☐ Applicable ☐ N/A

1. **Siltation** ☐ Location shown on site map **X** Siltation not evident
Areal extent_____ Depth_____
Remarks_____

2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A
☐ Vegetation does not impede flow
Areal extent_____ Type_____
Remarks_____

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident
Areal extent_____ Depth_____
Remarks_____

4. **Discharge Structure** ☐ Functioning ☐ N/A
Remarks_____

VIII. VERTICAL BARRIER WALLS ☐ Applicable X N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident
Areal extent_____ Depth_____
Remarks_____

2. **Performance Monitoring** Type of monitoring_____
☐ Performance not monitored
Frequency_____ ☐ Evidence of breaching
Head differential_____
Remarks_____

IX. GROUNDWATER/SURFACE WATER REMEDIES X Applicable ☐ N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines X Applicable ☐ N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
X Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A

Remarks:

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
X Good condition ☐ Needs Maintenance
Remarks_____

3. **Spare Parts and Equipment**
X Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided
Remarks See attachment

B. Surface Water Collection Structures, Pumps, and Pipelines X Applicable ☐ N/A

1. **Collection Structures, Pumps, and Electrical**
X Good condition ☐ Needs Maintenance
Remarks_____

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
X Good condition ☐ Needs Maintenance
Remarks_____

3. **Spare Parts and Equipment**
X Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided
Remarks_____

C. Treatment System X Applicable ☐ N/A

1. **Treatment Train** (Check components that apply)
☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
X Air stripping X Carbon adsorbers
☐ Filters___Precleaning bag filters were recently removed due to fouling issues._____
X Additives (*e.g.*, chelation agent, flocculent)__muriatic acid, sodium hypochlorite_____
Others___
X Good condition ☐ Needs Maintenance
☐ Sampling ports properly marked and functional
X Sampling/maintenance log displayed and up to date
X Equipment properly identified
X Quantity of groundwater treated annually_____
☐ Quantity of surface water treated annually_____
Remarks___Still have power outage problems and under/over voltage spikes. System was modified so that currently shutdowns last only 30 sec. before system automatically restarts. PLCs will shut down if the power outage is long-term.__

2. **Electrical Enclosures and Panels** (properly rated and functional)
☐ N/A X Good condition ☐ Needs Maintenance
Remarks_____

3. **Tanks, Vaults, Storage Vessels**
☐ N/A X Good condition ☐ Proper secondary containment ☐ Needs Maintenance
Remarks__ _____

4. **Discharge Structure and Appurtenances**
☐ N/A X Good condition ☐ Needs Maintenance
Remarks_____

5. **Treatment Building(s)**
☐ N/A X Good condition (esp. roof and doorways) ☐ Needs repair
☐ Chemicals and equipment properly stored
Remarks_____

6. **Monitoring Wells** (pump and treatment remedy)
X Properly secured/locked X Functioning X Routinely sampled X Good condition
☐ All required wells located X Needs Maintenance ☐ N/A

Remarks: Standing water was present in all three MW 08 cluster wells

D. Monitoring Data

1. Monitoring Data

X Is routinely submitted on time X Is of acceptable quality

2. Monitoring data suggests:

☐ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining

Remarks: Monitoring data suggests that the Rail Yard achieves complete capture at times. The system will need to be adjusted so that complete capture is maintained at all times. The Drag Strip area GCW does not achieve full capture.

D. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ All required wells located ☐ Needs Maintenance X N/A

Remarks

X. OTHER REMEDIES

See Attached table of monitoring well condition.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

The purpose of the Rail Yard remedy is to contain site-related groundwater contaminants and prohibit their offsite migration. The Rail Yard remedy is mostly effective and functioning as designed. The system will need adjustments to well pumping rates in order to achieve full capture at all times.

The purpose of the Drag Strip remedy is to treat site-related contaminant sources so that the time it takes for natural gradient flushing to reach groundwater standards at the Conrail Site is not significantly increased. As a pilot to the final Drag Strip remedy, the current GCW is effective and functioning in its radius of influence. The GCW, however, does not influence the entire Drag Strip plume area.

B. Adequacy of O&M

The implementation and scope of O&M procedures for monitoring the Conrail Site contaminant groundwater plume is adequate. An evaluation of the current and long-term protectiveness of O&M for vapor intrusion is underway.

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

___As noted, there are still voltage spikes to the system. The operator addressed this by employing an automatic restart of the system after a 30 sec. shut off. The Settling Parties will

monitor the effectiveness of this modification.

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

Site Monitoring Well Network

MW	Condition	Secured/Locked	Maintenance Notes	Comments
OW-5	Good, dry	X		
OW-3	Good, dry	X		
MW 02 (S, D, BR)	Good, dry	X		
DSMW 04	Good, dry	X		
DSMW 08 (S, I, D)	Good, dry	X		
MW 08 (S, I, D)	wet	X	Standing water in all	

Inspection Team

Tim Drexler	Remedial Project Manager	USEPA
Michael Berman	Office of Regional Counsel	USEPA
Kevin Herron	Project Manager	IDEM
Susan Horein		IDEM
Jeff Bahling	Hydrologist	IDEM
Tara Still		Elkhart County Health Dept.
Christopher Oakes	Manager, Env. Remediation	NS
Tom Hudson	Sr. Geologist	URS
Theresa Davis		URS
Frank Tamulonis		Blank Rome LLP

Inspection Team; by telephone

Tony Limke	Project Manager	URS
Dana McCue		URS
Helen Hart		NS
Matt Gerhard		NS

Interviews

Conrail Rail Yard Five-Year Review Site Inspection Checklist
Interview: URS/Weaver Boos

Tim
Responses to your questions to URS and Weaver Boos regarding personnel and Site operations are provided below.

1) **How long have you been involved in this Site?**

Weaver Boos: John Warner has been involved with the site since inception (Approximately 10 Years)
Ryan Spyker has been involved with the site since May 2010 (Approximately 3.5 Years)

URS has been involved at the Site since 1999. Key team members include Tony Limke since 2001; Tom Hudson since 2008; Wayne Lawrence since 2008; Teresa Davis since 2008.

2) **How many operating staff work this site and what are their duties?**

Weaver Boos: has three staff members contributing to the site maintenance.
John Warner: Operation Maintenance, repair, scheduling work, sample collection, report generation, billing, oversight and on-call.
Ryan Spyker: Operation Maintenance, repair, scheduling work, sample collection, supervision of contractors and on-call.
Traci Newman: Sample collection, report generation.

URS: Tony Limke (Program Manager): Serves as primary correspondent with USEPA and the Settling Parties; technical review of project deliverables and data analysis; overall management director of Superfund Project for URS.
Tom Hudson (Project Manager): Manages and coordinates Site tasks, including O&M conducted by Weaver Boos, groundwater and indoor air monitoring; report and technical document preparation, data analysis and management, and controlling/monitoring project financial elements.
Teresa Davis (Geologist and Field Team Leader): Primary local resident contact; leads field teams during groundwater monitoring, indoor air, well installation activities; conducts data analysis and is the database manager.

3a) What training and licensing do you and other O&M staff have?

Weaver Boos: John Warner: Professional Geologist, 40 hour OSHA and Hazwoper Trained.
Ryan Spyker: 40 hour OSHA and Hazwoper trained, Class A CDL
Traci Newman: 10 Hour OSHA and 40 Hour Hazwoper trained.

URS: All key personnel and field staff maintain the following training:

- 40-hour Hazwoper and Supervisor

- e-RAILSAFE
- Roadway Worker training

The program manager and project manager have American Institute of Professional Geologist certifications.

3b) What challenges do you have operating the site?

URS:

- Normal wear and tear on equipment leads to periodic mechanical and electronic failures.
- Power supply to the systems continues to be a chronic issue.
- After a decade or more of reporting minimal or no detection of COCs in indoor air, some long-standing residents have lost interest in continued monitoring and participating in additional, more invasive sampling activities.
- Denial of access to the Drag Strip to conduct additional Response Action related work prevents investigation of potential human health risk to downgradient residents.

4) Where are the Site O&M, HASP, and Training Records kept?

Weaver Boos: O&M manual kept at site and Weaver Boos office; HASP kept on site at Railyard; Training Records kept at Weaver Boos Office.

5) Are spare parts readily available? If so, where are they kept?

Weaver Boos: There are a select amount of spare parts kept at the Railyard Site.

6) Do you see any possible opportunities for optimization in monitoring tasks or the operation of the remedy?

The Settling Parties proposal to streamline the groundwater monitoring program for the Railyard remedy will be revised by EPA after the Five-Year Review.

7) Any other comments?

URS: The Settling Parties and URS continue to work collaboratively with the Agencies toward an appropriate level of remedial response, consistent with the 2000 ROD Amendment and given the current conditions and HHE risk.
Weaver Boos: Some equipment failure is expected, especially electronics, because there is sensitive equipment in a year round relatively harsh environment.

As requested, below are the total estimated costs for Superfund Site O&M from 2009-2013 inclusive of treatment systems operation, monitoring, reporting, and management. Additionally, the cost for implementing the Third Five-Year Review investigation and collaborative efforts between the Settling Parties and EPA toward Drag Strip Remedial Actions are provided in column #5. The cost for the Railyard treatment plant upgrade in 2012 and 2013 is also provided.

Year	Onsite O&M ($)	Management O&M ($)	O&M Subtotal ($)	5-Year Review ($)	GWTP Upgrade($)	GRAND TOTAL ($)
2009	348,400	154,500	502,900	151,700		654,600
2010	400,600	210,200	610,800	1,009,900		1,620,700
2011	318,600	309,800	628,400	267,000		895,400
2012	277,800	215,300	493,100	495,300	1,083,300	2,071,700
2013	345,000	366,300	711,300	317,100	57,600	1,086,000
Total	1,690,400	1,256,100	2,946,500	2,241,000	1,140,900	6,328,400

The breakdown of charges for 2013 are shown below.

2013 - Description of Site Work	
Railyard O&M	151,500
GCW O&M	64,200
Carbon	89,400
Other Materials & Exp	40,000
Management	366,300
TOTAL	**711,400**

EPA: If you could also state if there were any unanticipated or unusually high O&M costs for 2013, that would be appreciated."?
URS: Unusual costs for 2013 included significant investment into the resolution of the bag filters clogging at the Railyard treatment plant. Also, the cleaning cycle for all five extraction wells occurred in 2013.

Revised figure captions have been provided with the attached pictures.

Please contact us if you require any additional information.

Best Regards,
Tom Hudson
Tony Limke

Conrail Rail Yard Five-Year Review Site Inspection Checklist Interview: Tara Still

From: Tara Still [mailto:tstill@elkhartcounty.com]
Sent: Friday, March 14, 2014 2:56 PM
To: Drexler, Timothy
Cc: Gabriel Cameron
Subject: RE: Conrail Site Inspection follow-up

Hi Tim!

So Sorry. I think this got lost in the communication network and I put on the back burner. That's my fault. I understand that my supervisor, Gabe, did e-mail you and maybe the Manager, Karla. The following are my answers to your questions:

1) The Health Department has been involved from the beginning. I personally have been aware since 2007 when I was hired. I did not know the extent of the remediation until the site visit. So I found it very informative and I feel much more knowledgeable.
2) I found the remedies to be impressive. However, I must admit I have a limited knowledge base in this area. I do have confidence in the company monitoring the site.
3) The obvious answer is we would like the contamination levels to below detection limits.
4) From what I understand the EPA has done a good job with community meetings. Unfortunately there will always be a segment of the population with limited understanding.
5) Having said that, I cannot offer any solutions at this time.
6) I like that attention is being turned to Vapor Intrusion and think further testing in this area would be very useful.

Hope this helps! Thanks Tim!

Tara E. Still, REHS

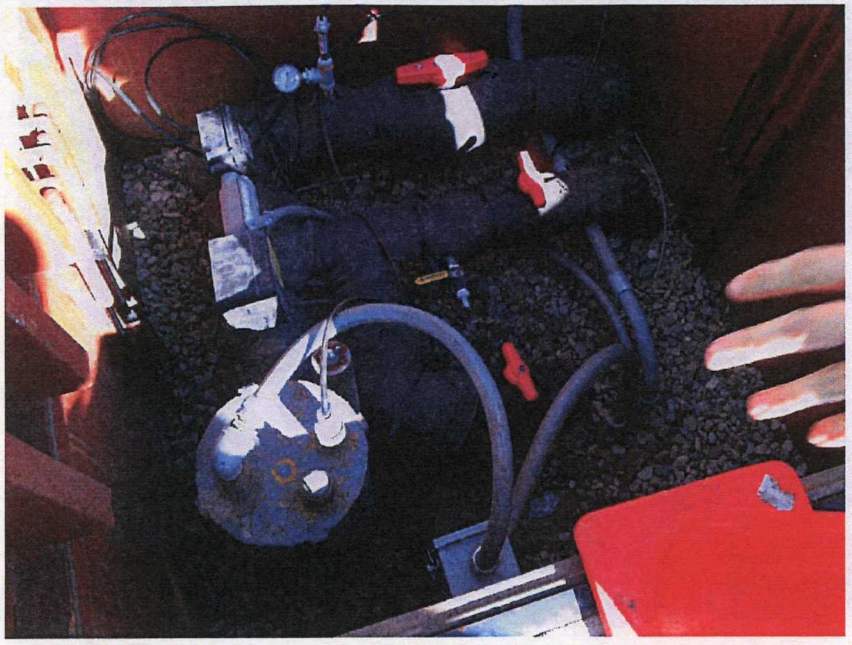
Elkhart County Health Department
Environmental Health Services
4230 Elkhart Rd.
Goshen, IN 46526
(574) 971-4600
Fax: (574) 971-4599

"The Elkhart County Health Department's mission is to strive to improve the lives and health of our community."

Conrail Rail Yard Five-Year Review Site Inspection Checklist
Interview: [redacted], Resident, 11/7/13

[redacted] felt that he was aware of the site issues, because of his technical background as an engineer. He was generally pleased with the work at the site except for nearby neighbor's geothermal wells that he said had to be closed due to the contaminated groundwater. He said he was concerned with neighbors that have had different types of cancer [redacted], but that the vapor sampling in his home has shown low levels. He stated that it would be nice to see what improvements have actually occurred at the site and to receive information on when the groundwater would be acceptable. He also said he would like information on how much of the contamination has been removed over how long a period of time. He said that the public meetings are a good way to get the site information out to the public, but that many are not interested. He said that he was glad that work is being conducted by Norfolk Southern but that regulators have been too lenient and have been allowing "licenses to pollute."

Photos Documenting Site Conditions



1. EW- 5

2. MW OW- 5

3. MW 08 3

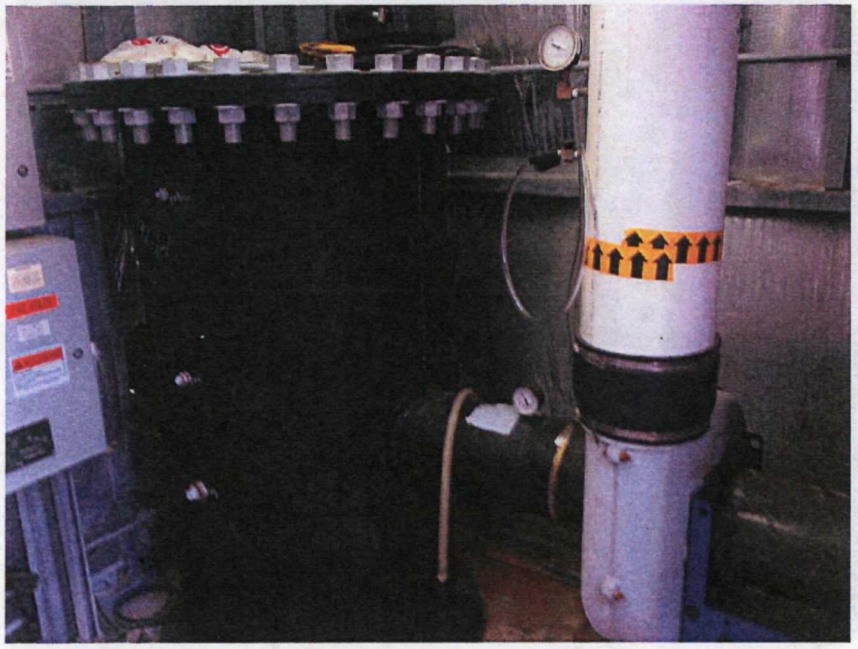
4. MW 08 2

5. MW 08

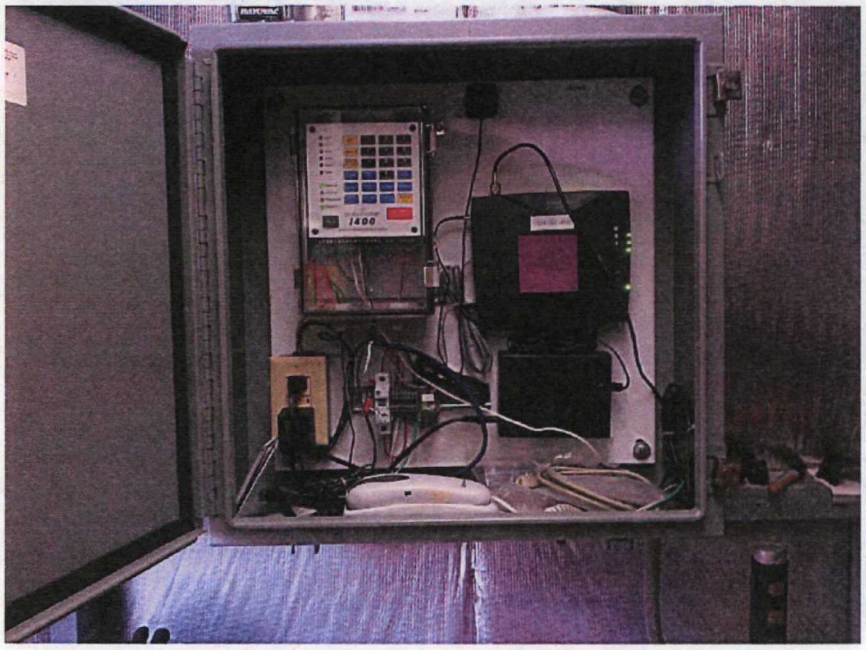
6. MW DSMW08

7. DS GCW Well 2

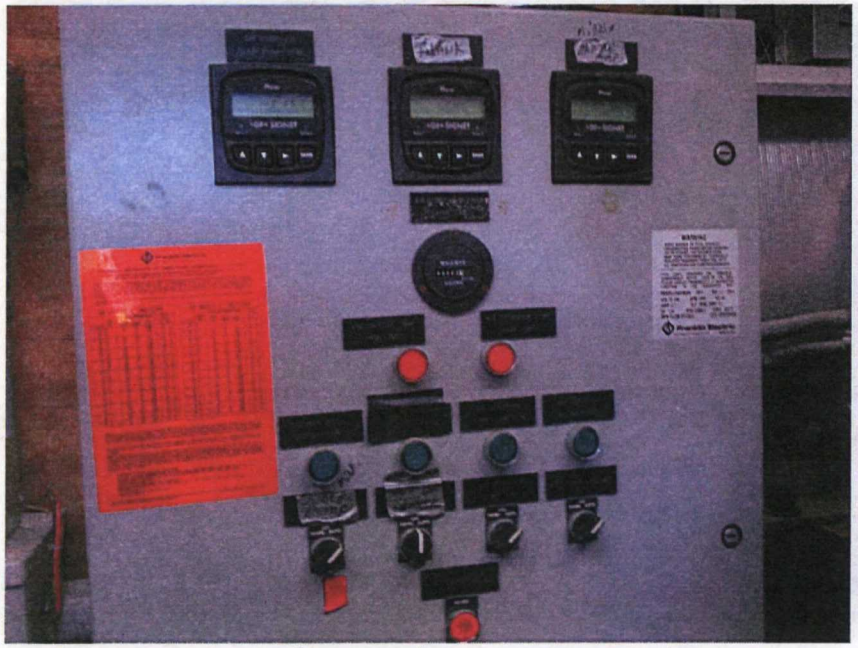
8. DS GCW Well



9. DS Knockout Tank



10. DS GCW Communication Panel



11. DS Control Panel

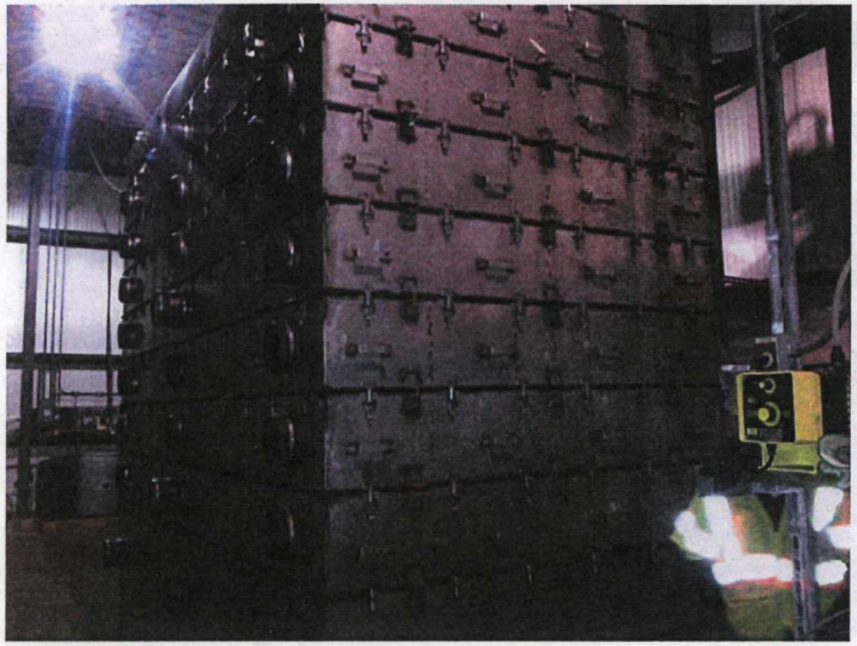
12. DS GCW Plant

13. MW BRM 02 2

14. MW 02

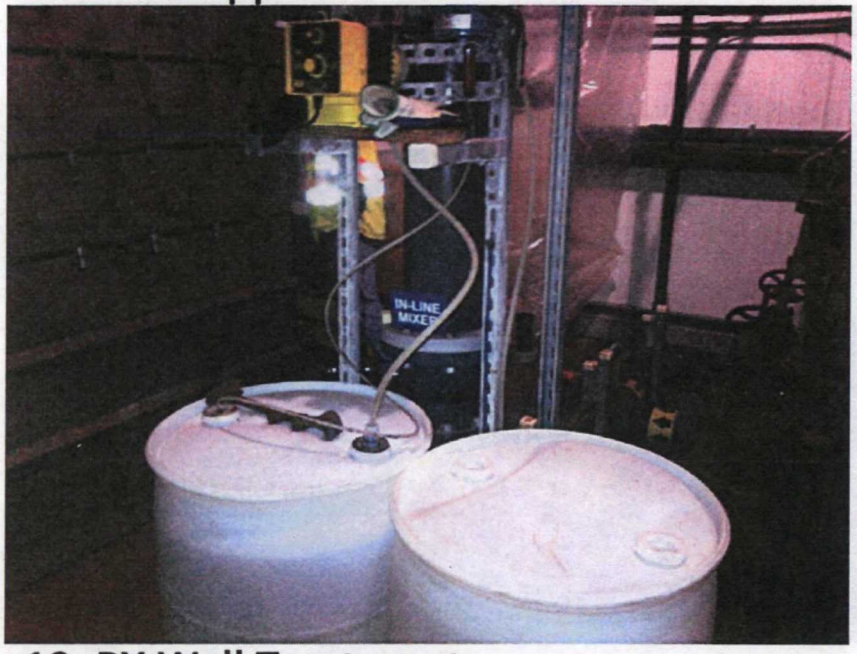
15. DS GCW Plant

16. RY Control Panel



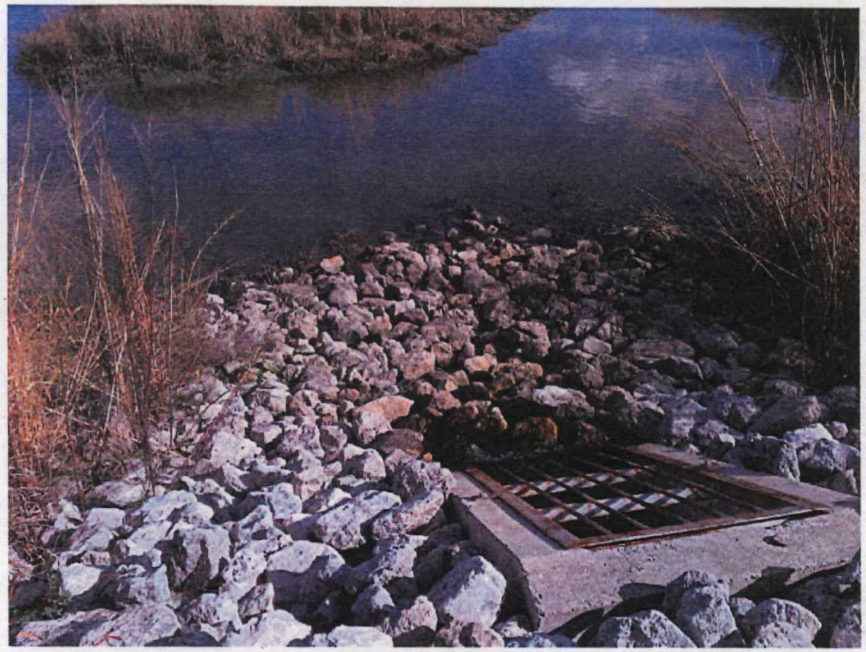
17. RY Stripper

18. RY Stripper 2

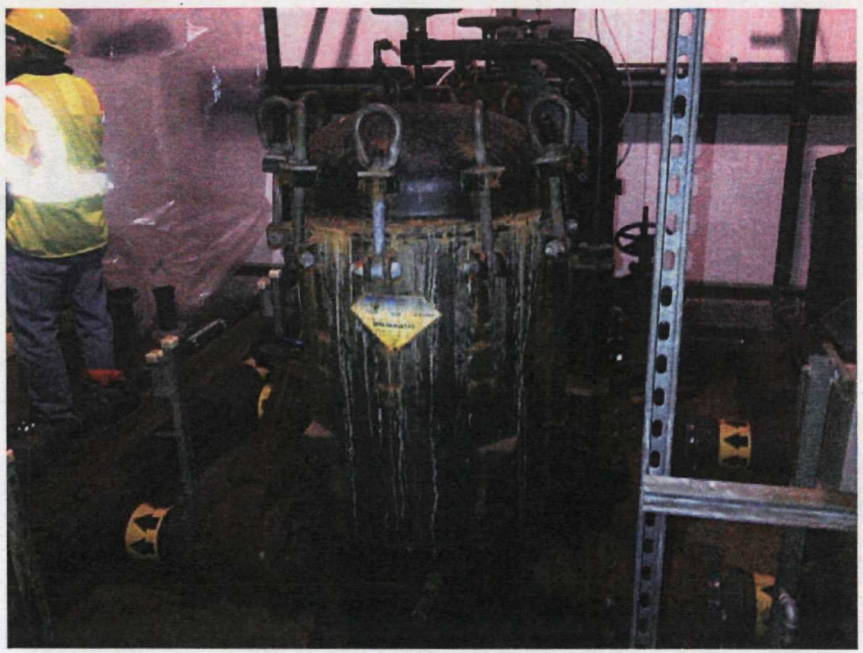


19. RY Well Treatment

20. RY Surf Wtr Discharge 2



21. RY Surf Wtr Discharge

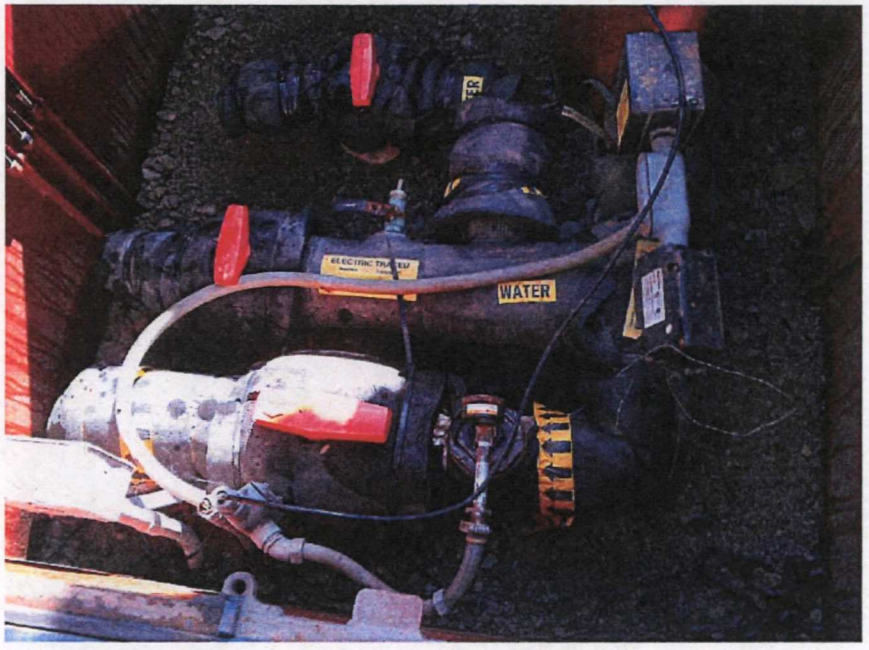


22. RY Bag Filters Inoperable

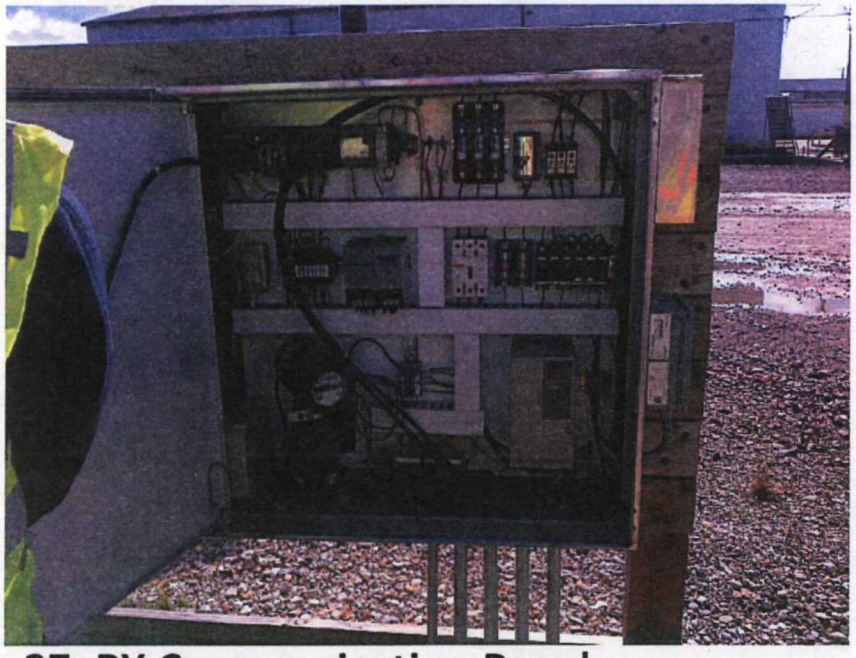
23. RY Exhaust Lines

24. RY GAC

25. MW OW- 3



26. EW- 3



27. RY Communication Panel

Comments Received from the Indiana Department of Environmental Management

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.
100 N. Senate Avenue • Indianapolis, IN 46204
(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

June 4, 2014

Mr. Tim Drexler
U.S. EPA, Region V
77 West Jackson Boulevard
Mail Code SR-6J
Chicago, IL 60604

Dear Mr. Drexler:

Re: Draft Fourth Five-Year Review Report,
Conrail Rail Yard Superfund Site,
Elkhart, IN

IDEM has completed review of the Draft Fourth Five-Year Review (FYR) Report for the Conrail Rail Yard Superfund Site submitted by the United States Environmental Protection Agency (EPA) on May 30, 2014 (Conrail_2014_FYR_6.docx). Thank you for providing us the opportunity to comment on the draft report. We concur with EPA's protectiveness statements and recommendations.

If you have any questions concerning these comments, please contact me at (317) 234-0353.

Sincerely,

Resa L Ramsey

Resa L. Ramsey
Federal Programs Section
Office of Land Quality

RLR: tr
cc: Rex Osborn, IDEM

EPA November 6, 2013 letter to Settling Parties

F/C

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

November 6, 2013

REPLY TO THE ATTENTION OF:

Mr. Anthony J. Limke
URS Corporation
525 Vine Street
Suite 1800
Cincinnati, Ohio 45202

Re: Conrail Superfund Site, Elkhart, Indiana

Dear Mr. Limke:

This letter is written in response to your August 9, 2013 letter concerning the United States Environmental Protection Agency's (EPA) and the Indiana Department of Environmental Management's (IDEM) July 12, 2013 comments on the Settling Party's Revision 1, Addendum 2 Final Design Report Containment Groundwater Pumping and Treatment System for the Conrail Superfund Site. EPA, in consultation with IDEM, (the Agencies) have reviewed your response and we outline our view of the path forward to ensure protectiveness of human health and the environment at the Conrail Superfund site. Comments on the proposed sub-slab sampling, additional groundwater monitoring and proposed modifications to the groundwater monitoring plan are provided in Attachment A.

Upgrading the Drag Strip Remedy

EPA, in consultation with IDEM, believes that the appropriate response, to ensure protectiveness of the residential area located downgradient of the Drag Strip, is the following actions:

- Immediate hot spot remediation of the Drag Strip hotspot sources by maintaining the current groundwater recirculation well (GCW) in operation in the western source, with the addition of a GCW to control the east source contamination hot spot;
- Establishment of groundwater to indoor air screening levels (GWIASLs), approved by EPA, as groundwater remedial cleanup levels until such time as natural gradient flushing is effective in returning groundwater to drinking water standards;
- Evaluation of remediation needs and their implementation to achieve the GWIASLs cleanup levels; and
- Maintenance of a protective vapor mitigation program in the mixed commercial/residential area down gradient of the Drag Strip.

EPA, in consultation with IDEM, strongly believes that a complete and final hot spot remedy at the Drag Strip should be implemented immediately. There is no justifiable reason for a delay.

The Drag Strip hot spot, first identified in the 2000 URS TI Waiver petition, has been delineated by URS (2013a). URS and EPA evaluations of the single Drag Strip pilot GCW demonstrate that it is an effective remedial technology but that the single pilot GCW is inadequate to address the overall Drag Strip hot spot sources (see Figure 3.1-16 in URS 2013a). The need to further remediate the Drag Strip hot spot sources beyond the area that is effectively addressed by the single pilot GCW is evident after reviewing groundwater monitoring data presented by URS that show overall plume concentrations from the Rail Yard are, at a minimum, unstable.

The practical intermediate remediation goal required by EPA, in consultation with IDEM, as discussed with the Settling Parties, is to develop and achieve GWIASLs that are protective at or below a $1x10^{-5}$ excess lifetime cancer risk. This would satisfy the established remedial action objective (RAO) to eliminate the potential for human exposure. The final remediation goal for the site is to return groundwater to drinking water standards.

Determination of the GWIASLs, to be used to assess the attainment of the RAO for eliminating the potential for human exposure while natural gradient flushing takes place, will be pursued concurrently with the initiation of the final Drag Strip hot spot source remedy. Groundwater concentrations will then be monitored in the mixed commercial/residential area down gradient of the Drag Strip using existing and planned wells, as previously discussed with the Settling Parties, to monitor achievement of the GWIASLs (see Attachment A).

EPA's Decision is Consistent with Site Decision Documents

Under the terms of the remedy outlined in the ROD Amendment, the contingent remedy to address failure of the Rail Yard hydraulic containment system to contain the DNAPL source zones is the installation of additional extraction wells off the Rail Yard to accelerate cleanup of the dissolved portion of the contaminant plumes. The 2000 TI Waiver approved by EPA identifies the emplacement of multiple additional extraction wells off site of the Rail Yard area as a part of the modified remedy in its summary of costs.

Implementation of a final Drag Strip remedy to include an additional GCW, in no way represents a fundamental change towards addressing site-related contaminants at the Drag Strip area. This approach is consistent with historical decisions concerning the Drag Strip portion of the Conrail Site. The Agencies reviewed the elements of URS' proposed design for the Drag Strip in light of new and existing information, as appropriate, and accelerated your planned contingency to remediate the Drag Strip hot spot sources due to the potential for increased vapor intrusion risk to residents and businesses from site-related contamination in shallow groundwater. Variability in the concentration of site-related contaminants within shallow groundwater, together with the demonstrated failure of the hydraulic containment system at the Rail Yard to contain the DNAPL source zones for eight years, until March 2013, justifies additional active remediation beyond the pilot GCW at the Drag Strip. This decision is consistent with the history of remedial design discussions with the Settling Parties as well as the remedy for the Drag Strip area as outlined in the ROD, the TI Waiver Petition, the ROD Amendment, and the Consent Decree between EPA and the Settling Parties.

The remedial action objectives (RAOs) established for the Conrail Rail Yard site have not changed from the 1994 ROD. They include:

- Minimizing potential for human exposure to contaminants by eliminating significant exposure routes and/or reducing contaminant concentrations; and
- Restoring the groundwater to its original use as a drinking water source.

Achievement of the RAOs, as identified in the guiding documents, is through a combination of (a) active remediation at the Drag Strip area, (b) hydraulic containment of Rail Yard sources, and (c) natural gradient flushing. Treatment of groundwater "hot spots" in the Drag Strip area to achieve drinking water standards is identified in the 1994 ROD (Figure 6: three-well system) and the 2000 TI Waiver Petition (Section 5.4: "*...continuing groundwater monitoring has shown that there is a "hot spot" beyond the Railyard boundary at the Drag Strip....the Settling Parties will be obligated to address it pursuant to the terms of the Consent Decree.*"), and the ROD Amendment: ("*The Drag Strip groundwater source area would need to be remediated ...and.... The Drag Strip area would be further investigated and remediated...*").

The ROD Amendment modified remedy, as outlined in the EPA-approved URS 2000 TI Waiver Petition, will achieve restoration of the dissolved contaminant plumes in a timeframe "*...comparable to the time frame of the ROD-specified groundwater extraction remedy.*"

EPA's Decision is Supported by Guidance Documents, Site Conditions, and Correspondence with the Settling Parties:

1. A site-related contaminant mass "hot spot" identified at the Drag Strip, must be addressed through remediation:
    a. "...continuing groundwater monitoring has shown that there is a "hot spot" beyond the Railyard boundary at the Drag Strip. If EPA approves the modified remedy (subsequently approved by EPA), the Settling Parties will be obliged to address it pursuant to the terms of the Consent Decree." (Petition for TI Waiver, URS, 2000).
    b. The mass of contaminant (total VOCs) present at the Drag Strip was estimated at about 2,300 lbs based on 2010 groundwater monitoring data. An area of "enrichment mass" was estimated to comprise at least 158 lbs (URS, 2012a).
    c. ROD Amendment excerpt (EPA, 2000): "...with the exception of the Drag Strip area (underline added)...the Settling Parties recommended...natural gradient flushing. The Drag Strip groundwater source area would need to be remediated since the presence of this contamination would significantly extend the amount of time needed for the dissolved portions of the County Road 1 plume to flush naturally."

2. Until upgrades to the Rail Yard remedy were completed in spring of 2013, there was a failure of the hydraulic containment system to adequately contain the DNAPL sources:

a. The Settling Parties acknowledged[1] that the Rail Yard remedy implemented in June 2004 provided incomplete capture of the Rail Yard DNAPL source zones (URS, 2011). Upgrades to the Rail Yard remedy completed in March 2013 (URS, 2013c) resulted in the complete capture of the Rail Yard DNAPL source zones at that time, over 8 years later than anticipated.

b.

3. The Rail Yard DNAPL source zones contributed dissolved trichloroethene (TCE) and carbon tetrachloride (CCl_4) to groundwater that ultimately migrates toward and through the Drag Strip area. Investigations have also identified Drag Strip sources of CCl_4 and TCE.
   a. CCl_4 concentrations in the range of 1000 µg/L have been observed in well MW-41 located downgradient of the Track 65-66 area (URS, 2013b, Figure "June 2012 Reverse Particle Tracks and CCl_4 Trends in Groundwater"), providing evidence for the presence of CCl_4 in the vicinity of the Track 65-66 area.
   b. URS, 2013b: "For TCE, the flow paths to and the concentrations upgradient of the DSMW-07 and DSMW-08 well clusters suggest the Track 65-66 TCE Source Area is a plausible potential source."

4. Recent monitoring well results show an increasing TCE trend in shallow groundwater upgradient of the Drag Strip Area.
   a. A statistically-significant increasing trend in concentrations, at a confidence level of 95%, was reported by URS (2013b) for TCE in monitoring well DSMW-07s for data obtained through June 2013:
   b. "The Settling Parties agree that shallow-zone plume instability, as characterized by increasing TCE trend in DSMW-07s cannot be ruled out at this time, but the data record is insufficient to characterize a longer-term trend" (URS, 2013b).
   c.

5. The risk pathway of contaminant exposure of residents via indoor air remains complete:
   a. "Due to the presence of VOCs in shallow groundwater and indoor air, the VI pathway remains complete (URS, 2013d)."
   b.

6. Concentrations of site-related contaminants in shallow groundwater exceed GWIASLs that have been developed to date:
   a. "Concentrations of CCl_4 and TCE at DSMW-07S exceed groundwater to indoor air screening levels (GWIASLs) that have been developed to date." (URS, 2013b).

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[1] From URS, 2011: *"The three methods of analysis show that complete groundwater capture of Track 65-66 TCE Source Area is not conclusively indicated. This finding is supported by review of TCE concentration trends for wells in this part of the Rail Yard. For the Track 69 CCl4 Source Area, complete contaminant capture is conclusively indicated here based on changes in contaminant concentration in wells downgradient of the Line of Containment, the timing of these changes, and with the Grubb method findings. However, the KT3D_H2O results indicate that the eastern portion of the Track 69 CCl4 Source Area is not captured.*
The Settling Parties will conduct further work in order to achieve the objective of groundwater containment at TCE and CCl4 from the Rail Yard Track 65-66 Source Area. Complete contaminant capture is indicated for the Track 69 Source Area."

b. The Agencies also note that GWIASLs would be on the order of 76 µg/L instead of 239 µg/L for CCl_4 (URS, 2013d) if the approach outlined by EPA (2002) is used (i.e. using 95th percentile instead of 95% upper confidence limit (UCL) concentrations as a reference for computing GWIASLs).

7. EPA's July 12, 2013 response letter is consistent with contingencies contained in the selected remedy chosen for the Conrail Site Drag Strip area in the 2000 ROD Amendment:
   a. ROD Amendment excerpt (EPA, 2000): "The groundwater remedy for the Conrail Site is…drag strip source area remediation".
   b. ROD Amendment excerpt (EPA, 2000): "Development of a contingency remedy to address failure of the hydraulic containment system to adequately contain the DNAPL sources and/or inadequate performance of natural gradient flushing…would be to install additional extraction wells off the rail yard…to speed up the cleanup of the dissolved portion of the contaminant plumes."
   c. ROD Amendment excerpt (EPA, 2000): "Remedial action at the Drag Strip area could include hydraulic containment of the source areas on the Drag Strip property."

8. The GCW is an effective and appropriate technology both for (a) capturing and removing mass from the Drag Strip area and (b) hydraulically containing and capturing contaminants migrating onto the Drag Strip area:
   a. "The pilot-phase operation of the GCW since 2004 has demonstrated this technology's effectiveness at source remediation at the Drag Strip." (URS, 2013d)
   b. Modeling indicated the following hydraulic capture dimension estimates for a typical GCW operational flow rate: Upgradient Capture Zone: 230 feet; Upper Circulation: 87 feet; Lower Circulation Cell: 73 feet (URS, 2012b).
   c. "Through August 2007, the GCW has removed an estimated 1,040 pounds of Total VOCs from groundwater at the Drag Strip" (URS, 2007). Removal rates shown in URS Figure 22 (2007) were on the order of 1 lb/day.
   d. Since 2004, the GCW has remediated more than 2,000 lbs of contaminants.
   e.

9. The existing pilot GCW is, alone, insufficient to fully capture and remove the contaminant mass from the Drag Strip area:
   a. Figure 3.1-16 in URS 2013a shows that the existing GCW captures a very limited portion of the contaminant present at the Drag Strip (Note: the mass shown on figure 3.1-16 is a volume of "enrichment" - i.e. contamination present in addition to the concentrations flowing into the Drag Strip Area - and does not represent the entire extent of contamination at the Drag Strip).

EPA's Decision is Supported by the Consent Decree

EPA's request for an upgrade to the Drag Strip remedy is not only supported by the ROD, current SOW, site conditions, correspondence with the Settling Parties and guidance documents, but also by the Consent Decree.

Paragraph 6 of the Consent Decree provides that the Settling Defendants shall "*...perform the Work in accordance with this Consent Decree, the Rod, the SOW and all work plans and other plans....*" Paragraph 13 of the Consent Decree provides that the Settling Defendants shall implement the first and second remedial actions, including O & M, until the performances standards are achieved and for so long thereafter as is otherwise required under this Consent Decree.

Paragraph 14 of the Consent Decree provides that, "*If EPA determines that modification to the work specified in the SOW and/or work plans ...is necessary to achieve and maintain the Performance Standards or to carry out and maintain the effectiveness of the remedy set forth in the ROD, EPA may require that such modification be incorporated in the SOW...provided, however, that a modification may be required...only to the extent that it is consistent with the scope of the remedy selected in the ROD and that it addresses (1) releases .. of hazardous substances at or from the Conrail Railyard, ...*" This requirement is limited by a statement, saying that a modification is appropriate only if the time for the standards to be achieved will be significantly delayed. Paragraph 14 states that EPA makes that determination.

It is EPA's position that the work requested meets the criteria of paragraph 14. As outlined in the numbered paragraphs above, this work is necessary to achieve and maintain the Performance Standards and to carry out and maintain the effectiveness of the remedy. Paragraph 14 provides that the Settling Defendants shall implement any work required by any modifications incorporated in the SOW or in work plans developed pursuant to the SOW.

In addition, Paragraph 14 goes on to say, in subparagraph e, that nothing in paragraph 14 limits EPA's authority to require performance of further response actions. EPA believes that even if the Settling Defendants assert that the work does not meet the requirements in paragraph 14, that the work meets the requirements in paragraph 20. See numbered paragraphs 1-6 above.

Paragraph 20 provides that if EPA determines, at any time, that the Remedial Action is not protective of human health and the environment, EPA may select further response actions for the site in accordance with the requirements of CERCLA and the NCP. EPA believes that the remedy as currently being implemented is not protective of human health and the environment. See numbered paragraphs 1-6 above.

Paragraph 22 provides that the Settling Defendants shall undertake such further response actions to the extent that the reopener conditions in Paragraphs 83 or 84 are satisfied. The conditions at the site meet the requirements of Paragraph 83. Conditions and information at the Site previously unknown to EPA have been discovered, as outlined above in documents from the Settling Parties. These unknown conditions and information indicate that the Remedial Action is not protective of human health or the environment.

The PRPs failure to comply with these Consent Decree requirements can also result in a determination that Settling Defendants are in noncompliance with the Consent Decree. This could result in stipulated penalties being assessed pursuant to paragraph 72 and/or additional enforcement actions.

Therefore, EPA repeats its request that the Settling Defendants:

- Immediately implement hot spot remediation of the Drag Strip sources by maintaining the current GCW in operation in the western hotspot source area, and with the addition of a second GCW to control the eastern hotspot source area;
- Establish GWIASLs, approved by EPA, as intermediate groundwater remedial cleanup levels until natural gradient flushing returns groundwater to drinking water standards;
- Evaluate and implement remedial actions to achieve the established GWIASLs cleanup levels; and
- Maintain a protective vapor mitigation program in the mixed commercial/residential area down gradient of the Drag Strip.

To satisfy the remedial action objective to eliminate the potential for human exposure, GWIASLs that are protective at or below a $1x10^{-5}$ excess lifetime cancer risk need to be attained.

If you have any technical questions concerning this letter, please contact me at 312-353-4367. If you have any legal questions concerning this letter, please contact Michael Berman at 312-886-6837.

Sincerely,

Tim Drexler
Remedial Project Manager

References

Attachments

Attachment A: Comments to the proposed sub-slab vapor sampling, additional groundwater monitoring locations, and groundwater monitoring plan
Attachment B: EPA's July 12, 2013 Letter; corrected tables

cc: K. Herron, IDEM
C. Oakes, Norfolk Southern

References

EPA, 2000. Record of Decision Amendment to Change Groundwater Remedy, Conrail Superfund Site, Elkhart, Indiana.

EPA, 2002. OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance) http://www.epa.gov/osw/hazard/correctiveaction/eis/vapor.htmEPA, 2013. Vapor Intrusion Screening Level (VISL) Calculator. User's Guide. June. http://www.epa.gov/oswer/vaporintrusion/documents/VISL-UsersGuide.pdf

URS, 2007. Third Annual Performance Evaluation, Second Remedial Design/Remedial Action. Conrail Rail Yard Superfund Site, Elkhart Indiana.

URS, 2011. Technical Memorandum: Rail Yard Capture Zone Analysis, for the Conrail Rail Yard Site, Elkhart, Indiana.

URS, 2012a. Response to EPA comments, Technical Memorandum: Drag Strip VOCs Delineation, Conrail Rail Yard Superfund Site, Elkhart Indiana.

URS, 2012b. Technical Memorandum: Evaluation of Drag Strip GCW Hydraulic test, Revision 1. Conrail Superfund Site, Elkhart, Indiana. May 9.

URS. 2012c. Technical Memorandum, Indoor Air Monitoring- Spring 2012 Event, Conrail Rail Yard Superfund Site, Elkhart, IN. August 1.

URS, 2013a. Five-Year Review Investigation Report Conrail Rail Yard Superfund Site, Elkhart, Indiana. February 28.

URS, 2013b. Response to EPA Comments, Revision 1, Addendum 2 Final Design Report Conrail Superfund Site, Elkhart, Indiana. Letter to Timothy Drexler, August 9.

URS, 2013c. Groundwater Containment Pumping and Treatment System Upgrades, Conrail Superfund Site, Elkhart, Indiana. July 25.

URS, 2013d. Addendum 2 Final Design Report, Conrail Rail Yard Superfund Site, Containment Groundwater Pumping and Treatment System, Elkhart, Indiana. Revision 1. April 15.

Attachment A

Comments to the proposed sub-slab vapor sampling, additional groundwater monitoring locations, and groundwater monitoring plan

Sub-slab Vapor Sampling

The Agencies support the establishment of groundwater to indoor air screening levels (GWIASLs) as cleanup levels for the Drag Strip Remedy. We offer the following comments with respect to URS' proposal for sub-slab sampling to be carried over towards that end.

The Agencies agree that the focus locations for sub-slab sampling should be in residential and business areas that are, based on current information and geographic location, at most risk of vapor intrusion. The Agencies disagree, however, that sub-slab locations should occur disproportionately in those residences that have existing vapor abatement systems, for the following reasons. First, the Agencies are concerned that the presence of existing abatement systems has the potential to bias the results of sub-slab sampling. In particular, it has not been demonstrated that a 24-hour shut down period for an abatement system is sufficient to enable vapors to stabilize at levels indicative of conditions absent an abatement system (for example a period of 30 to 45 days is generally recommended during post mitigation activities). Second, sub-slab sampling has the potential to create new pathways for vapor intrusion into homes that have known vapor intrusion issues. Bearing in mind these concerns, EPA, in consultation with IDEM, will review and consider all sub-slab sample data collected at the Site. However, data obtained from locations with abatement systems will be qualified and the Agencies reserve the right to reject these data if deemed biased low or unrepresentative. The Agencies also recommend performing sub-slab sampling at additional locations that are situated within the core of the groundwater contamination plume and that are not currently equipped with a vapor abatement (depressurization) system. In all cases, the sub-slab sampling port must be carefully installed, sealed and capped to avoid the creation of preferential vapor flow pathways. The Agencies recommend that the sampling probes be installed in such a way as to allow subsequent sampling events which are needed to assess seasonal variability. The sampling protocols described in REAC SOP #2082 (EPA, 2010) should be followed.

Sub-slab sampling locations that have been identified by EPA, in consultation with IDEM,, in addition to the locations proposed by URS, are tabulated below and depicted in Figure 1 (modified after URS, 2013d):

Address	Structure Type	Building Construction	Remark
[redacted]	Unknown	Unknown	Indoor air detections (Attachment 3, Figure 1, URS 2013d), near plume core.
[redacted]	Unknown	Unknown	Indoor air detections (Attachment 3, Figure 1, URS 2013d), near plume core.
[redacted]	Unknown	Unknown	Indoor air detections (Attachment 3, Figure 1, URS 2013d).
[redacted]	Unknown	Unknown	Indoor air detections (Attachment 3, Figure 1, URS 2013d).
[redacted]	Residential	Basement	URS Proposed location
[redacted]	Residential	Basement	URS Proposed location
[redacted]	Residential	Basement	URS Proposed location
[redacted]	Residential	Basement/partial Crawl Space	URS Proposed location
[redacted]	Residential	Slab on Grade	URS Proposed location
[redacted]	Unknown	Unknown	Western boundary definition
[redacted]	Unknown	Unknown	Western boundary definition
[redacted]	Unknown	Unknown	Western boundary definition
[redacted]	Unknown	Unknown	Proximal to upgradient source
[redacted]	Unknown	Unknown	Proximal to upgradient source
[redacted]	Commercial	Basement	URS Proposed location
[redacted]	Unknown	Unknown	Proximal to upgradient source and plume core
[redacted]	Residential	Basement	URS Proposed location
[redacted]	Commercial	Slab on Grade	URS Proposed location
[redacted]	Commercial	Slab on Grade	URS Proposed location
[redacted]	Residential	Basement	URS Proposed location
[redacted]	Commercial	Basement	URS Proposed location

An attempt should also be made to obtain sub-slab samples from locations where access to obtain a sub-slab sample was not provided in the past:

Address	Remark
[redacted]	No access but in vicinity of locations with treatment or indoor air detections
[redacted]	
[redacted]	
[redacted]	

Since data are not available from these and other locations where access was previously declined for a particular sampling event, it is not possible at this time to qualify the VI pathway as "controlled or incomplete". As indicated by URS, *"The Settling Parties have observed a decrease in participation between the Spring and Fall 2012 events, (...)"*. The challenge to maintain access that is necessary to conduct vapor sampling in homes and businesses in the area known to be impacted by groundwater contamination is another reason supporting the need for further hydraulic control of the groundwater contamination sources.

Additional Groundwater Monitoring Locations

In addition to the two monitoring wells that have been proposed to monitor concentrations on the western Drag Strip property boundary, EPA, in consultation with IDEM, concur with URS that additional groundwater monitoring is needed in the residential area. EPA, in consultation with IDEM, recommend placing shallow groundwater monitoring wells in the vicinity of the following addresses (Figure 1):

1) [redacted]
2) [redacted]
3) [redacted]

As part of the GWIASLs evaluation, all shallow groundwater monitoring data will require review in order to confirm that they are representative of contaminant conditions at the sampled buildings in the area.

Any monitoring locations thus added to the current sampling and monitoring program should be incorporated into the next scheduled monitoring event, resulting in a comprehensive data set that can be used to support the final determination of GWIASLs

Groundwater Monitoring Plan

The Agencies do not concur with reducing the frequency or locations of groundwater sampling and monitoring at this time.

Any new monitoring locations added to the current sampling and monitoring program should be incorporated into the next scheduled monitoring event, resulting in a comprehensive data set that can be used to support the final determination of GWIASLs at the Drag Strip

Regarding the site-wide (including the Rail Yard monitoring program), the Agencies do not approve ad-hoc removal of sampling or monitoring locations, or reductions in sampling frequency, until after completion of the 2014 Five-Year Review. At that time, the Agencies will consider reductions in sampling and monitoring locations and frequency if such reductions are presented to the Agencies as part of a long-term monitoring program. To do so, EPA will require submittal by the Settling Parties of a plan providing technical justification for sampling/monitoring optimization and outlining any triggers and/or contingencies for increased sampling frequency in the event of unexpected or concerning results.

Response to Specific Question:

Finally, to address URS's question regarding "x10 adjustment factor":

The Johnson and Ettinger (J&E) model was used to calculate groundwater concentrations that would correspond to the indoor air action levels (SSP&A, 2010). SSP&A found that the initial model results were greater than observed indoor air (groundwater equivalent) concentrations by approximately one order of magnitude (SSP&A, 2010: Figure 7). An adjustment factor ("x10") was therefore applied to the groundwater concentrations corresponding to the indoor air action levels calculated by the model (i.e. multiply ambient air levels [ppbv] by a factor of 24.3x10 for TCE and a factor of 9.33x10 for CCl_4 to obtain the corresponding groundwater concentration in µg/L). These values were included as a reference only and were not used further for the evaluation of the VI Risk.

References

EPA, 2010. Region 5 Superfund Division Vapor Intrusion Guidebook. http://www.epaosc.org/sites/3806/files/VI%20Guidebook%20-%20%2010-1-10%20-%20final%20version.pdf

SSP&A, 2010. Evaluation of Indoor Air Monitoring, Conrail Superfund Site, Elkhart, Indiana. May 7.

Figure

Figure 1: EPA Proposed Sub-slab sampling locations (modified from URS, 2013d, Attachment 3, Figure 2)

Attachment B

EPA's July 12, 2013 Letter Corrected Tables

The statistical trend test results reported in Table 1 of EPA's July 12, 2013 letter were inverted between TCE and CCl4 in well DSMW-07. This Attachment contains all Tables from the July 12, 2013 letter, corrected where necessary. The magnitude of the VI risk ratio values calculated are slightly changed, however the conclusions remain unchanged.

Table 1. Statistical Trend Test Results (PAM)

Well ID	TCE Concentration Trend (log µg/L-yr) (Mann-Kendall confidence attained in parenthesis)	CCl_4 Concentration Trend (log µg/L-yr) (Mann-Kendall confidence attained in parenthesis)
DSMW-07S	**0.66343 (≥95%)**	**0.18065 (80%)**
DSMW-07I	**0.06210 (92%)**	**0.31383 (≥95%)**
DSMW-07D	0.00000 (50%)	0.00000 (45%)
DSMW-08S	0.01712 (50%)	0.09718(59%)
DSMW-08I	**0.06295 (86%)**	-0.00351 (59%)
DSMW-08D	-0.08420 (83%)	0.00000 (45%)

Table 2. Most Recent Well Sampling Results (December 2012)

Well ID	TCE Concentration (µg/L)	CCl_4 Concentration (µg/L)
DSMW-07S	110	1300
DSMW-07I	34	1400
DSMW-07D	45	<1
DSMW-08S	38	33
DSMW-08I	820	95
DSMW-08D	140	<1

Table 3. Summary of Available Options of Groundwater Concentrations Corresponding to Ambient Air Screening Levels

	Ambiant Air Level (ppbv)	Corresponding Groundwater Concentration (µg/L)	Comments
TCE	2.3	560	From Source 1. GW concentration corresponding to EPA VI Screening Level x10 (adjustment factor).
CCl_4	0.26	24	From Source 1. GW concentration corresponding to EPA VI Screening Level x10 (adjustment factor).
TCE	0.4	100	Ambiant air level from Source 2 (Site Specific IASL), corresponding Groundwater Concentration calculated based on Source 1.
CCl_4	0.65	60	Ambiant air level from Source 2 (Program Action Level), corresponding Groundwater Concentration calculated based on Source 1.
TCE	**0.4**	**55**	**From Source 2 (Updated GWIA Screening Levels)**
CCl4	**0.65**	**239**	**From Source 2 (Updated GWIA Screening Levels)**
TCE	0.8	5.2	From Source 3 based upon $1x10^{-5}$ Excess Lifetime Cancer Risk or a Hazard Index of 1
CCl4	0.65	3.6	From Source 3 based upon $1x10^{-5}$ Excess Lifetime Cancer Risk or a Hazard Index of 1

Sources:
1-SSP&A (2010)
2-URS (2012b)
3-EPA (2013a)

Table 4. VI Risk Ratio: Ratio of observed Groundwater Concentrations to GWIASLs (URS, 2012b)

Well ID	TCE Concentration Dec 2012 (ug/L)	GWIA Screening Level (URS 2012b) (µg/L)	TCE VI Risk Ratio	CCl_4 Concentration Dec 2012 (ug/L)	CCl_4 GWIA Screening Level (URS 2012b) (µg/L)	CCl_4 VI Risk Ratio
DSMW-07S	110	55	**2.00**	1300	239	**5.4**
DSMW-07I	34	55	0.62	1400	239	**5.9**
DSMW-07D	45	55	0.82	<1	239	ND
DSMW-08S	38	55	0.69	33	239	0.14
DSMW-08I	820	55	**14.91**	95	239	0.4
DSMW-08D	140	55	2.55	<1	239	ND